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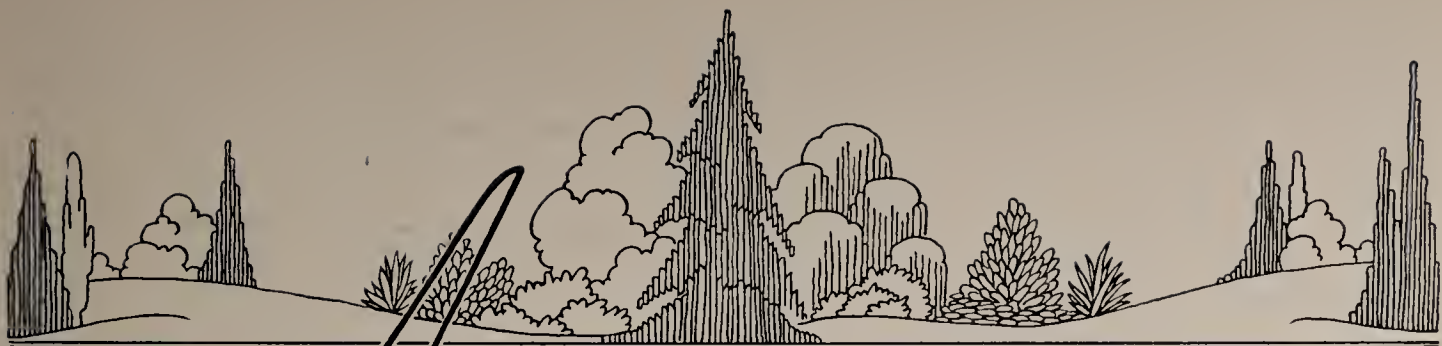
SPECIAL MAGNOLIA NUMBER

TABLE OF CONTENTS

Report on the Arboretum.....	Brian O. Mulligan	1
The Missouri Botanical Garden.....	Dr. George T. Moore	4
Magnolias—American Species.....	Mrs. O. B. Thorgrimson	6
Magnolias in English Gardens.....	A. T. Johnson	8
Magnolias in Victoria, B. C.....	Richard Layritz	10
Magnolias in Public Parks and Gardens—A Symposium		
Magnolias in the Arboretum.....	Robert J. Hansen	12
Magnolias in Philadelphia.....	Henry T. Skinner	13
Magnolias in the Parks of Rochester, N. Y....	William Pitkin	14
Magnolias in New Brunswick, N. J.		
.....	Dr. Charles H. Connors	15
Magnolias in St. Louis.....	Dr. George T. Moore	16
Magnolias in Golden Gate Park.....	Eric Walther	17
Notes and Comments.....		18
List of Articles on Magnolias.....		20
Book Review		21
Arboretum Notebook		23
Index to Volume X.....		30



Magnolia Soulangeana, var. *Alexandrina*, growing in the garden of Mr. Donald G. Graham, Seattle. From a color transparency photograph by Mr. Graham.



The Arboretum Bulletin

Report on the Arboretum

BRIAN O. MULLIGAN

DURING the dry period of the summer months only regular maintenance operations such as hoeing, cultivating with the mechanical rotary cultivators, watering and sprinkling of grass or recently planted areas, mowing and raking could be undertaken, until cooler weather came in September and brought with it heavy dews at night.

We were then able to sow grass along the prepared paths around the Cistus beds on the east side of the Upper Road which had been planted in the spring, and in about a week had good germination, so that this section now looks much more trim and very different from its appearance a year ago.

With the heavy rains experienced from the middle to end of October (over 8 inches fell in Seattle that month) it was possible to again start turning over fresh ground and transplanting from the nurseries some of those plants which most needed a move—both very necessary and essential tasks.

Some of the remaining grass on the steepest part of the south side of Rhododendron Glen has now been dug and left temporarily in a rough state for the winter. By early spring we expect to place here another group of rocks to balance with those on either side, and then to plant in the upper part species of the Triflorum series of rhododendron, already located here, descending to more closely planted groups of rhododendrons of the dwarf Laponicum series, with probably heathers in the forefront. The light, sandy soil, well-drained

and open situation, should be entirely to the liking of all these members of the Ericaceae family, particularly with the annual addition of mulch of compost or leaves which they will receive.

Two fresh areas have now been plowed; one on the east side of the Upper Road between Rhododendron Glen and the cistus mound, the other north of the line of poplar trees on the old city dump site, towards the northern end of the boulevard and Arboretum.

The former covers about 1½ acres and is intended to provide greater and more suitable space for members of the large Leguminosae or pea family, of which Amorpha, Cercis, Robinia, Cytisus, Genista and Caragana are examples, as an extension of the original site around the south end of the Upper Road near the rock garden.

On the Broadmoor boundary fence in the rear we propose to plant at least part of the clematis collection, which, excluding the herbaceous, non-climbing kinds, comprises at present some fourteen distinct species and eighteen of the large-flowered hybrids. In front of the fence we shall keep a grass walk to connect eventually with the Berberis and Cistus groups to the north and the camellia plantings and Rhododendron Glen to the south.

The second area is considerably larger, some three to four acres near the boulevard, and nearly as much again as one goes out in a northeasterly direction towards the terminus

of the old city dump, although a considerable part of this last remains to be cleared of brambles. However, we have now taken the first step, despite many buried obstacles which added to the difficulty of plowing such rough and uneven land, and if all goes well should be able to start planting there some time next spring. The selected families are: (1) the large and important Rosaceae, including Rosa, Sorbus, Cotoneaster, Prunus, Malus and Spiraea, to name only a few genera; (2) Compositae, having Senecio, Olearia and Artemisia among others; and (3) Salicaceae—willows and poplars—of which there are already some specimens planted.

This, we anticipate, will give us a much-needed outlet for many plants now in the nurseries, and in future years should make this formerly almost derelict area a place of some beauty and attraction throughout much of the year.

Planting

Since the middle of October we have planted the following groups, generally either three or five plants of each species so far as stocks permitted:

Ceanothus. Fourteen species in two sites on the banks east of and above Azalea Way, towards the south end.

Rhus. The Sumachs. Six species in the triangle between the Ceanothus, the Upper Road and the lookout point above Azalea Way.

Eucryphia. Two species (*E. glutinosa* and *E. lucida*) and two hybrids (*E. intermedia* and *E. nymansensis*) between the Sumachs and the Upper Road.

Tree Peonies. A further fifteen plants in the area set aside for them just below the Upper Road, opposite the Cistus. It is hoped to obtain more plants in the near future both from European and American sources to add to these groups.

Hydrangeas. Varieties of *H. macrophylla* (*hortensis*) type around the parking lot at the north end of the Arboretum. This planting has had to be temporarily suspended owing to the wet state of the ground and will be continued later.

Lonicera. About thirty of the shrubby

species in their allotted section between Azalea Way and the boulevard, after clearing a small hill of brambles and alders for the purpose.

Lilies. Bulbs of five species and one hybrid (L. Maxwell) have been placed near the head of Rhododendron Glen and on the opposite eastern side of the Upper Road. Most are native American kinds, *L. canadense*, *L. Grayi* and *L. superbum* among them, but in addition 200 bulbs of *L. regale* are included, planted amongst low-growing azaleas. If these thrive, then in subsequent years we shall probably increase both the number of varieties and the area covered, since under congenial conditions they may increase rapidly and certainly provide flowers at a season when rhododendrons have none.

The following have been planted on Foster's Island, the northern limit of the Arboretum:

Alnus. Alders. Nine species, chiefly in the damp and low-lying areas east and west of the road just over the bridge.

Betula. Birches. Seventeen species and several varieties, on the higher ground interspersed amongst the pines and madronas (*Arbutus Menziesii*).

Pinus. Twenty species arranged in groups according to their botanical relationship, *i.e.*, the 3-needled pines associated together, separated from the 2-needled and 5-needled species.

As far as possible the alders and birches were also similarly arranged and planted; this policy will be adhered to so far as practicable with all plantings, since it is both logical and more convenient for visitors and students who wish to examine or compare species of any one genus.

Woodland Garden

Through the continued cooperation and enthusiasm of West Seattle Garden Club we have been enabled to employ extra labor for the purpose of cleaning out the two ponds at the east and west ends of Woodland Garden, as well as the connecting channel between them. The result is a marked improvement in the appearance of this water system and its immediate surroundings, aided by the beds of various Primulas planted along the banks

in late summer. Available Japanese Iris plants will be added in early spring on the pond banks. Plans have also been made for further improvements here by removing unwanted or unsightly old bushes of native shrubs, especially elders, nuts and willows, by felling several partly-dead maple trees and then planting the extra available space in keeping with the surroundings. Especial attention will be given to adding to the existing fall color of Japanese Maples and Sorrel trees (*Oxydendrum arboreum*) and to future plantings of bulbs for spring effects.

Azalea Way

The Seattle Garden Club is also active in sponsoring the enhancement of this major feature of the Arboretum and by spring we expect not only to have planted here some new and interesting trees and shrubs, including magnolias, golden-leaved oaks and cypresses, birches, Japanese cherries and others, but also to have moved some of the existing dogwoods and cherries into more harmonious and pleasing arrangements.

The plan for the proposed memorial planting for the late Mrs. Edward Garrett has been drawn up by my assistant, Mr. R. J. Hansen, and the necessary work of preparing the ground has commenced. This also we expect to complete before next spring. The main features are to be *Rhododendron* Loder's White in the center, *R. mucronatum* along the front, with *Enkianthus* on the southwest to provide fall color. The site is on the lower north side of *Rhododendron* Glen, about 100 yards east of and easily accessible from Azalea Way.

Nursery

Four sections have been completely cleared during the summer, plowed and frequently cultivated to remove or kill as much of the perennial weed growth as possible, particularly quack grass, horsetail and morning glory, which have been major nuisances.

One section was replanted entirely with some 2,400 young rhododendron plants from the frames and lath houses during September; the adjoining one to the north has since been filled with other young trees and shrubs, chiefly those raised from seeds in 1946 and

1947. Shortly we hope and expect to tackle the most overgrown section at the foot of the hill, from which some plants have been removed for permanent planting both last spring and in recent weeks, but many still remain amidst a dense growth of quack grass and other pernicious weeds. When cleared, this area will have to be plowed, then subsequently thoroughly cultivated, and probably fallowed next summer to make it fit for use by the fall of 1948.

Additions to the Library

Since July 1, 1947, the following books, many obtained from European sources, are among those added to the library:

"Conifers in Cultivation," Royal Horticultural Society, London (1932).

"The Gardener's Bug Book," Cynthia Westcott (1945).

"Trees and Shrubs Hardy in the British Isles," Vols. I and II, 3rd edition, W. J. Bean (1921).

"Review of *Juniperus chinensis*," P. J. van Melle (1947).

"Pruning of Trees and Shrubs," W. Dallimore (1926).

"Arboretums and Botanical Gardens of North America," Dr. D. Wyman (1947).

"Forest Botany of China," Shun-ching Lee (1935).

"Holly, Yew and Box," W. Dallimore (1908).

"Natural History of Plants," Kerner and Oliver (1895).

"Check-list of Fuchsias," Dr. E. O. Essig (1936).

"Index to Journal, 1838 to 1935," Royal Horticultural Society, London (1937).

"Yuccas of the Southwestern United States," Susan D. McKelvey (1938).

"Monograph of Azaleas," E. H. Wilson and A. Rehder (1921, reprint 1942).

"Journal of Arnold Arboretum," 12 parts (1931-1934).

"Yearbook of the American Rhododendron Society," 1946 (donated by the Society).

"Suppression of Weeds by Fertilizers and Chemicals," H. C. Long and Dr. W. E. Brenchley.

(Continued on Page Twenty-two)

The Missouri Botanical Garden

DR. GEORGE T. MOORE*

ON the morning of May 4, 1819, a young English lad arrived at the village of St. Louis on the steamer "Maid of Orleans," just up from New Orleans. If any of the then less than 3,000 inhabitants could have looked forward to today, they might have given the boy a heartier welcome than he undoubtedly received. For it was this boy who, grown to manhood, had the foresight and generosity to found what he chose to call the Missouri Botanical Garden. A successful merchant, retiring at the age of 40, Henry Shaw traveled extensively in Europe and apparently from what he saw abroad decided to have a beautiful estate of his own. From about 1860 until the time of his death in 1889, most of his time was devoted to developing this private garden, destined to become one of the leading botanical institutions of the world.

In his will Henry Shaw left the major portion of his estate to a self-perpetuating board of trustees who were to use the income for the maintenance and development of the institution he had so carefully and lovingly planned. He had much more than a mere show place in mind. He hoped for a scientific institution that would contribute definitely to a better knowledge of plants along every possible line, besides bringing pleasure and recreation to the general public. For this reason he early began to accumulate books and dried plant specimens which constitute the basis of the existing library and herbarium, both now regarded as taking first rank in their respective fields. By providing for a scientific staff, specialists in various botanical fields, he insured the investigations in plant life that, carried on since his death, have produced a solid, scientific, international reputation for the garden. The results of these investigations are embodied in the *Annals*, a quarterly publication now numbering some 34 volumes. In addition to the *Annals* there is published ten times a year an illustrated monthly *Bulletin* devoted to

general horticulture and botanical matters chiefly associated with the activities of the garden itself.

All great botanical gardens specialize in one or more fields and this is why it is so difficult to fairly compare them. Some excel in one way, others are noted for something quite different. The Missouri Botanical Garden has for the past 25 years been recognized as having produced more new worth while tropical water lilies than any place else in the world. Wherever aquatic gardens are featured, whether in this country or abroad, the Missouri hybrids are always a central attraction. Tourists make a special effort to visit the Garden during the late summer months just to see the display of tropical lilies. Cars from 20 different states have been noted at one time. Other outdoor collections are along standard lines and include iris, roses, perennials, as well as native and exotic trees and shrubs. Particular attention to trees and shrubs is now being paid at the Arboretum.

The Arboretum is a tract of 1,600 acres, 35 miles southwest of the city, which was acquired in 1925, and is still under development. One reason for the selection of the site was to conserve native plants of this region. Because of the rich native flora a wild flower garden of some four hundred acres is gradually being established. Here also is to be found representative collections of conifers and other evergreens which formerly could not be grown successfully in the city atmosphere, including a box garden bounded by an appropriate serpentine wall where some ten hardy varieties have been established. Over fifty varieties of narcissus are becoming naturalized at various locations on the grounds and in the spring acres are carpeted with a profusion of these yellow and white flowers.

Probably at no other public garden in the world is the display of orchids as fine as that available to residents of St. Louis. It is at the Arboretum, however, that the collection of some 25,000 plants is housed. Orchids are to

*Dr. George T. Moore, director of the Missouri Botanical Garden, contributes this fourth in our series of articles on well-known Arboreta.

be seen at the city garden throughout the year, but in January and February one large greenhouse is devoted to the Annual Orchid Show. The unusual number of orchids of all kinds has made it possible to conduct elaborate experiments on orchid culture, including growing plants from seeds. Valuable contributions to the subject have been made both for the amateur and commercial grower.

The conservatories in town afford an opportunity to visitors to see something worth while at any time of the year. Typical collections of palms, ferns and exotic plants of all sorts including outstanding plantings of cacti and succulents are to be found under glass. Beginning in November the annual chrysanthemum show is staged, followed in succession by the Christmas show of poinsettias and lilies, orchids, annuals, spring flowers, etc. In this large greenhouse the Horticultural Society, Dahlia Society and the Henry Shaw Cactus Society also hold their shows.

Mr. Shaw, in his endeavor to encourage scientific work, left to Washington University a small endowment for a school of botany. In accepting the gift the University named it in his honor and the graduates of the Henry Shaw School of Botany now occupy many of the leading botanical positions in the country. The Garden contributes from its income not only the maintenance of the library and herbarium, the cost of publication and many minor items, but also helps to make it possible for the school to maintain a staff of ten leading specialists in various fields of botanical investigation. The Garden itself is absolutely independent of the University, both as to income and management. While freely opened to the public, it is strictly a private institution deriving no support from city, state or nation. In fact, it pays taxes to the City of St. Louis on all its property outside of the Garden, a sum which has amounted at times to one-fourth the annual income. Since Mr. Shaw's death over \$2,500,000 have been paid to the city in regular and special taxes.

Among the things which make the Missouri Botanical Garden unique are some of the unusual provisions in Henry Shaw's will. Be-

sides providing prizes for flower shows, for an annual banquet for the trustees and another for the garden employees and their friends, Mr. Shaw designated that an annual sermon on the "wisdom and goodness of God as shown in the growth of flowers, fruits and other products of the vegetable kingdom" be delivered, and set aside an honorarium for the preacher. Every year since his death this "Flower Sermon" has been preached in Christ Church Cathedral.

Thus, the Missouri Botanical Garden, like all botanical gardens worthy of the name, is something much more than a collection of blooming plants, shrubs and trees. Any grouping of growing things may constitute a private garden or a public park, and be a source of pleasure and recreation to unlimited members, but a botanical garden must in addition have facilities for study and a staff capable of using these facilities. It must also have the means of recording for other scientists the results of investigations, as well as disseminating knowledge of every kind concerning plants.

The main features of the Missouri Botanical Garden might be summarized as follows:

- (1) Collections of Living Plants.
 - (a) Under glass. Tropicals and exotics including 25,000 orchids, extensive desert and succulent collections, palms, plant curiosities, etc.
 - (b) Out-of-doors. In season, narcissus, wild flowers, iris, azaleas, roses, water lilies, box garden, mixed trees and shrubs.
- (2) Collections of Dried Plants. Nearly a million and a half specimens in the herbarium representing floras of the world—available for study by students and specialists.
- (3) Exhibitions. Monthly flower shows including dahlias, cacti, chrysanthemums, Christmas show, orchids, annuals and spring flowers.
- (4) Research. Investigations by recognized specialists in genetics, plant breeding, taxonomy, mycology and various aspects of applied botany.

(Continued on Page Twenty-eight)

Magnolias—American Species

MRS. O. B. THORGRIMSON*

NO GROUP of plants in our section has received more attention in recent years than the magnolias, with the possible exception of the rhododendrons. And rightly so, for magnolias are interesting on many counts. They are prehistoric in age; fossil remains are found as far north as the Arctic circle, along with those of the *Ginkgo* and other early forms of vegetation. Mr. R. D'O. Good, in "Annals of Botany," cautiously remarks, "... the genus *Magnolia* appears to have been widely distributed in the northern hemisphere, much farther north than is now the case."

Magnolias with their magnificent foliage, matchless flowers and pleasant fragrance surpass any other group of ornamental trees in beauty and variety. Leaves in the various species range from a few inches in length to over a yard, the latter type giving a fairly hardy tree an exceptionally tropical appearance. The flowers also vary in size, some a few inches across, others with magnificent waxy blooms over a foot in diameter. They are solitary and in almost all forms deliciously fragrant. The color range is from reddish purple, pink, yellowish white, to pure glistening white. The flowers have a calyx of three sepals, and a corolla of from six to fifteen petals.

The seed pods are often beautiful, cone-shaped with bright red seeds; some of which when ripe hang suspended on long thin threads.

The range of growth in North America is limited; from southern New York and Pennsylvania along the Atlantic Coast southward through the southern states to Arkansas. In the Pacific Northwest, all species and their hybrids seem to be perfectly hardy and, given the proper location, soil and moisture, grow at an astonishing rate. Growth of from three to five feet on young plants is not unusual in

our garden. The above statement should be modified to exclude those types originating in tropical regions and not yet tried out here. One such is *M. splendens* from Costa Rica, said to be "a glorified *grandiflora* and one of the finest magnolias in the world, but it remains for some enthusiast to introduce it into our Western gardens where it would probably thrive."

The flowering period of the various species and hybrids extends over a season lasting from early spring to late autumn, rivaling and surpassing the rhododendron in length of succession of bloom.

The tree forms, if given a chance, are symmetrical and beautiful, the bark clean and smooth, and, best of all, they are not subject to insect pests nor fungus diseases. Slugs like the leaves of deciduous varieties, but bait and the removal of branches from the ground eliminate this pest.

The aromatic bark and leaves are esteemed in China for their medicinal properties. Mr. E. H. Wilson in "Aristocrats of the Garden" says of *M. officinalis*, "its bark and flower buds constitute a valued drug, which is exported in quantity from central and western China to all parts of the empire."

The rate of growth of magnolias depends, as with any other plant, upon the care given them. If planted in deep loamy soil, given plenty of moisture, good drainage, protection from wind, a certain amount of sunshine and cultivation, they flourish accordingly. Given such conditions they will soon outgrow their site unless plenty of room is allowed in the beginning.

Authorities seem to agree that the genus, as a whole, is rather indifferent as to soil acidity or alkalinity. However, Bean in Vol. II of "Trees and Shrubs Hardy in the British Isles," names three species disliking chalk (lime) and in a later addition names six species as liking chalk, giving Major F. Stern as authority.

Many of the tree forms, such as *M. Kobus*, *M. hypoleuca* and *M. Campbellii*, range in

*Mrs. O. B. Thorgrimson, a member of the editorial board of the Bulletin, is one of the Northwest's most enthusiastic gardeners and a popular writer on horticultural subjects, despite the comparative infrequency of her publications. The present article is the first of two on magnolias, the second one being promised for our next issue.

height from 50 to 150 feet. The shrubby species as *M. stellata*, *M. Sieboldii* (*M. parviflora*) often attain great width, if given the opportunity. Millais in his book, "Magnolias," tells of one *M. Sieboldii* in his garden that has attained a height of 22 feet and a circumference of 60 feet.

In buying magnolias it is well to choose the smaller plants, as they move more readily, without the shock that comes in moving larger specimens. The newly placed plant should be well staked. Iron stakes are best and the size may be increased until the tree can fend for itself. We find one-inch water pipe excellent for the larger sizes.

Watering is most important the first year after moving. Small plants may be moved readily either spring or fall, but it is better to move larger plants in the spring. Pruning these small plants is most essential, for at this early stage they are easily shaped. This pruning should be done with the thought that the wood of all magnolias is very light, close grained and brittle. Heavy wet snow or strong wind can easily do great damage, so a single main stem, except in the shrubby types, with interlacing branches eliminated, will strengthen the tree and help prevent masses of snow collecting.

Apropos the pruning and shaping of magnolias we have had an interesting experience with a beautiful *M. denudata*. Unfortunately, when the heavy wet snow fell last November it had not shed its leaves. As a consequence, before the snow could be shaken off, one of the two central stems, more than two inches in diameter, broke off rather high up. The stub was left to tie the remaining branch in position. One garden visitor remarked the stub should be taken out. To this we agreed, but still felt the remaining branch needed support, so left the offending member. Later many sprouts started from this broken stem, all of which were removed, except three or four growing out in all directions to fill the empty space.

The simplest classification of magnolias is the separation into the deciduous, the evergreen, and the semi-evergreen groups. Or they

may be considered according to their flower forms as the many-petalled types *M. stellata*, *M. Kobus* and *M. salicifolia*; the large, rather flat type which occur in our deciduous species, *M. tripetala* and *M. macrophylla*; the evergreen magnolias as *M. grandiflora* and *M. Delavayi*; the beautiful cup-shaped forms as *M. Sieboldii*, *M. Wilsonii*, and, choicest of all and blooming before the leaves appear, *M. denudata*, *M. liliflora*, and their hybrids, also *M. Campbellii*, *M. Sargentiana* and *M. mollicomata*.

They may be classified according to their geographic distribution. They appear, generally speaking, in North America along the Eastern seaboard from New York and New Jersey southward, across the south as far as Arkansas. In Asia from Japan, Korea, through parts of China to the Himalayas. We will first consider the North American species and their hybrids, followed by descriptions of the Asiatic species and their hybrids.

It is interesting to note there are no species common to both hemispheres. American magnolias produce their flowers at the same time as their leaves or after the latter are fully unfolded. Many of the Asiatics bloom before their leaves appear.

The deciduous species of North America are all fairly hardy, *M. acuminata*, the cucumber tree, having the farthest range northward. It has leaves six to ten inches long, three to six inches in width and is one of the few magnolias having a rough bark. The tulip-shaped flowers are smaller than those of most magnolias and are inconspicuous because of their color, a yellowish green. The seed pods of this species at first look like pale green cucumbers, hence the common name. These fleshy green cones flush pink and turn red as autumn approaches. In September each mature carpel splits open and two scarlet seeds hang out, each suspended on an elastic thread. *M. acuminata* is said to be good stock upon which to graft the less hardy magnolias. This tree was sent to England in 1746 by that intrepid plant hunter, John Bartram, to his friend, Peter Collinson.

(Continued on Page Twenty-six)

Magnolias In English Gardens

A. T. JOHNSON*

THOUGH magnolias have long been well represented in most of our larger gardens and parks they have never become popular in the usual sense. They have retained their splendid dignity and remain—with the sole exception perhaps of rhododendrons—the most distinguished and ornamental of all the great groups of flowering trees and shrubs. Of the two main divisions—deciduous and evergreen—the former are the most often seen in Britain, for they are generally quite hardy, whereas the evergreens, being to the tender side, are only at their best in our southwest counties and westerly Scotland. The early ones among the former are, of course, liable to have their blooms spoiled by spring frosts, but they are so supremely beautiful and so luxuriant in flowering none of us would forego them on that account. The following notes, being brief, will, for the most part, be confined to those magnolias which are the best-known generally.

One of the most prevalent of deciduous species is *M. stellata*, a bushy shrub the flowers of which, with their white strap-shaped petals, often flushed with lilac at the base and scented, are borne profusely and regularly. The Star Magnolia is delightful in March and April, and of it there is a pale rose-lilac form and a rare later introduction with a rose-carmine reverse to its 15 petals. This has the reputation of repeating its spring performance in autumn. Closely allied is the tree-like *M. Kobus*, rather broader in the white petals and slightly fragrant. But *Kobus borealis*, a more erect grower, is still better in our garden, the larger blooms, borne most luxuriantly, being richly scented and the foliage is fuller. In both of these the wood and bark are redolent of “lemon-verbena,” this being common, in some degree, to many of the family. We find *Kobus* a thoroughly reliable magnolia and singularly handsome when sheeted with its multitude of blossoms, and *M. salicifolia* is

yet another of remarkable beauty. This species, with smaller and narrower leaves and white flowers, also fragrant, is a little earlier and does not attain the stature of the last mentioned. The Caerhays form has extra large blooms and a broader leafage. All these flower well before the leaves appear.

In May the lovely *M. Wilsonii* shows the first of its pendulous bell-shaped blossoms, marble-white with crimson stamens, a succession of which is maintained for at least a month. One of the choicest of all, *M. Wilsonii*, does not go to more than some 8 to 12 feet with us and begins flowering at an early age. It seeds freely and even produces self-sown seedlings in our garden. Akin to this is *M. sinensis* (*Nicholsoniana*) with a stronger growth and wider, more rounded, rougher leaves. The flowers (June) of this, another Wilson plant, are in the same bell-like style but larger (3 to 4 inches across) and pure white with that striking wreath of deep rose-crimson within. A third member of this admirable group, *M. Sieboldii* (*parviflora*) makes a large bush. Its 3- to 4-inch blossoms, yielded throughout the summer, are rather flatter than those of the above, but of the same firm whiteness with the same crimson centre and richly scented like the others. A prolific bloomer, *Sieboldii* is one of the most desirable of all summer magnolias, but we always try to secure large-flowered forms with the dark crimson stamens for there are inferior ones in distribution. The 2- to 3-inch carmine fruits of all these magnolias are very attractive in late summer. *M. globosa*, with rusty leaves and twigs also belongs to this section. There are two forms of *globosa*, Himalayan and Chinese, but the plant has not yet made much headway in our gardens, possibly on account of its spring precocity rendering it liable to frost injury. The somewhat globular blossoms (June) are cream-white, 3 inches across and fragrant, the fruits crimson and flowering begins when small.

M. Watsonii, a first-class hybrid, presum-

*Mr. A. T. Johnson, an amateur gardener—in the strict sense of the word—is one of Great Britain's many well-known authors on horticultural subjects, whose work has appeared previously in the Bulletin and whose return herewith is most welcome. He lives at Conway, N. Wales.

ably between *M. Sieboldii* and *obovata* (*hypoleuca*) is a tall shrub or small tree. We find it rather loose and open in growth, but it makes full amends for any such failing by its hardiness, ease of culture and outstanding beauty of blossom. Moreover, it comes into flower at an early age, it does not bloom until the worst of our frosty period is over and carries on until August. The saucer-shaped flowers, heavy in texture, at least 6 inches across and cream white, are centered by a massive boss of crimson. Their scent is delicious and so powerful it may be detected at a distance of 50 yards. The rich fragrance of *M. Watsonii* is apparently a legacy from *M. obovata*, a tall and handsome, hardy, well-balanced tree with large leaves and, in summer, 8-inch white blooms with a wreath of purple and intensely perfumed. Though it does not flower for many years after planting it pays its way with its fine foliage and commanding presence.

M. denudata, the famous Yulan, and *liliflora*, introduce us to the most widely planted magnolias in these gardens. The one, with its immaculate white (or rosy) goblets on the naked branches, the other with lilac-stained white or deep claret, are the parents of the useful and beautiful varieties of the *M. Soulangiana* group, all of them in spring bearing in profusion massive blossoms, white or some shade of lilac or purple with a pearl-white interior to the thick petals. The most generally grown are *Soulangiana*, *S. alba*, *Lennei*, *Alexandrina*, *Brozzonii*, *nigra*, *rustica rubra* and *speciosa*. They are all eminently striking, very reliable and flower over a long season. They bloom when little more than shrubs. Though hardly tree-like they often make a width of 30 to 40 feet. Some admirable specimens of the much taller *M. Sprengeri* and its rosy form, *S. diva*, may be seen in such gardens as Bodnant, Caerhays and Nymans.

M. Campbellii, *Sargentiana*, *mollicomata* and *macrophylla* are known to comparatively few gardens, but of the first we have some notable trees which, in favorable seasons, give a wonderful display of their superb blossoms. But the more recent *Sargentiana robusta*, which will begin yielding its astonishingly

beautiful rose-pink blossoms while still in its youth, is making rapid headway in all gardens where the choicest of the genus are grown. The true *robusta* can be told by the large obovate leaves having an indentation, rather than a pointed tip, at the rounded end of each leaf.

M. Thompsoniana (*virginiana* x *tripetala*) we like for its lemon-scented, 6- to 8-inch ivory blossoms, suggesting water lilies. These are borne over a long period in summer and the fresh green foliage is delightful. It flowers young and makes a handsome bush of 10 feet or so. Yet another notable hybrid is *M. Veitchii* (*denudata* x *Campbellii*) a vigorous tree which in spring is an astonishing spectacle with its thousands of tall vase-shaped blossoms in a clear rose-pink. Hardy and a great grower, *Veitchii* serves as a useful substitute for *Campbellii* in the case of those who can not wait for that leisurely aristocrat to attain maturity. Though I would place *M. Thompsoniana* before *M. virginiana* in garden value, the latter (the first American magnolia to arrive here in 1688) is very pleasing in summer when, for many weeks, even into autumn, it will be hung with its pure white, globular, 3-inch blossoms. In most of our gardens *virginiana* is deciduous.

The only evergreen magnolia often seen in this country is *M. grandiflora*, introduced from America in the early 18th century. This majestic species is not unfamiliar as a wall plant, but some grand old open-ground trees are doing well in our milder counties. Unfortunately, many of these older specimens do not represent the species at its best. The variety Goliath, for example, is much beyond the average in size of leaf and flower and it produces its heavily textured, fragrant, creamy blossoms (July-October), one foot across, while still a bush. *Gloriosa* is another excellent variety, with even more magnificent blossoms and *ferruginea* is a free bloomer with a bright rusty-brown reverse to its shining leaves. None of these are definitely tender, as we understand the term. That is to say, they will endure 25 degrees of frost without their foliage or twigs being seriously injured, and they are good growers, usually robust and healthy.

Magnolias In Victoria, B. C., and on the Northwest Coast of North America

RICHARD LAYRITZ*

THE magnolia is a genus of deciduous and evergreen trees named by Linnaeus in honor of Pierre Magnol, a professor of botany and medicine at Montpellier, France, who died in 1715. The species in cultivation come from two widely separated areas, one group from the eastern United States, the other larger one from the mountains of India, China and Japan.

In one respect magnolias are the most splendid of all hardy trees, for in the size of their individual flowers they are easily first. The flowers are produced singly at the ends of the shoots, the calyx consisting of three sepals, the corolla of usually six or nine, sometimes 15 or 18 petals. The fruit is more or less cone-shaped and, like the seeds, often richly colored. The young branches are very pithy, the leaves alternate and always entire. In most of the species the bark when crushed emits a pleasant aromatic odor and some varieties have medicinal properties.

Next to rhododendrons, no group of exotic trees gives more distinction to a garden than a complete collection of magnolias. There is not one that is not worthy of cultivation, the early-flowering *Soulangeana* section being especially noteworthy for the brilliant effect they produce in the spring. The only difficulty experienced in cultivating these trees is in establishing some of them after transplanting. The roots are thick and fleshy and apt to decay if disturbed and lacerated when the trees themselves are at rest. The planting, therefore, which involves root injury, should preferably be done when active growth has commenced, so that wounds may heal, and new roots may be formed immediately. March and April are the best months to transplant, except, of course, balled trees recently transplanted from the nursery, which may be plant-

ed any time. All species love leaf-mould and peat, but the strong-growing sorts thrive in any well-drained rich soil. Naturally it is desirable to trench and enrich the soil suitably for such delightful trees and some extra care and labor at the outset will amply be repaid.

The most popular of all the deciduous magnolias to be found in our Victoria gardens, by virtue of its hardiness, free-flowering habit and general attractiveness is *Soulangeana*. This hybrid was raised early in the last century by Mr. Soulange-Bodin of Paris, France, from seed of *M. conspicua* fertilized by pollen of *M. obovata* and flowered first in 1826. It forms a large bush or small tree blooming in March or early April and often covers the bare branches completely with its wealth of blossom. The flowers are white, more or less purplish on the outside, and slightly fragrant. There are now numerous varieties of *Soulangeana* of which the following are the best known:

S. Alexandrina—One of the earliest to bloom; flowers outside towards the base deep purple, inside white.

S. Brozzonii—One of the most beautiful but quite rare as yet. It soon grows into a fine specimen, 15 feet high and as much wide, carrying bold green leaves, 8 to 10 inches long, with white flowers which have just the faintest stain of blush at the base.

S. Lennei—Very showy bold flowers almost fully dark purple outside and of free-flowering robust habit.

S. Nigra—A less vigorous grower, but the flowers are dark crimson both inside and outside the petals.

Next in popularity is the well-known *Magnolia stellata*—the Star Magnolia—which is the first to bloom in February or March and produces its delightful star-shaped flower even on quite small plants. On larger shrubs the flowers are almost countless in quantity and,

*Mr. Richard Layritz is well-known in Victoria and elsewhere in the Northwest as a nurseryman of long and wide experience, not only in the cultivation of magnolias but of other woody plants as well.

planted with *Chionodoxa Luciliae* or *Muscari* grouped around, creates a most lovely picture. On the variety *stellata rosea* the flowers are of a tender rosy color on first opening.

Then we have *M. cordata* a rarity with canary-yellow flowers, of pyramidal habit quite distinguishable by the aromatic fragrance of its stems and leaves and flowering freely on quite young plants in May and June.

M. denudata—better known as *conspicua*—is by far the best pure white of the deciduous magnolias, forming a spreading tree 30 feet or more in favorable locations; leaves four to seven inches long, flowers sweet-scented, six inches across, goblet-shaped; petals and sepals almost alike, fleshy, three to four inches, blooming even when young from March to May. They are most effective if planted in front of and slightly shaded by dark conifers.

M. hypoleuca makes an erect growing tree 50 to 80 feet high with a trunk up to three feet in diameter. The leaves in a cluster at the ends of the shoots are leathery, 8 to 18 inches long and half as wide, glaucous green above, blue white and slightly downy beneath. The eight-inch flowers produced in June are strongly scented, stamens bright purplish red, forming with the yellow anthers a conspicuous circular mass three inches across in the center of the pure white flowers; in fact this is one of the most beautiful of all hardy deciduous northern trees both in leaf and flower.

M. liliflora purpurea from China is one of the best of the genus for the small garden as it does not grow much over six feet in height and diameter. The aromatic thin stems are pretty from March to the end of May with three-inch bell-shaped, white suffused wine-red flowers nestling between the obovate pleasant green leaves.

M. parviflora, as its name implies, has small cup-shaped flowers, white with crimson stamens. It is a very hardy little tree or large bush, a native of Japan and Korea, flowering early and off and on all through the summer.

M. salicifolia, an upright pyramidal tree up to 30 feet high, has lanceolate pale green leaves, bluish beneath. The narrow-petaled, sweetly-scented white flowers are borne on

naked branches in April, both the wood and leaves of the best form being aromatic.

M. Sargentiana, while it has not flowered here yet with us in Victoria is said to be a most beautiful magnolia. The flowers are a long oval, white tinted violet and it makes a graceful tree up to 80 feet high in the wild state.

M. virginiana (glauca) is a native of the eastern coast of the U. S. A., evergreen in the south but loses its leaves in winter north of New York, as it did here in Victoria last winter. It has glaucous green leaves and vivid green stems, while the flowers are globular, two to three inches wide, delightfully scented and produced continuously from June to September.

M. Watsonii is another highly desirable species. A deciduous shrub or dwarf tree with obovate leaves six to eight inches long, tapering, rather glaucous and slightly hairy beneath. The flowers, five to six inches across, have a powerful aromatic scent, petals obovate, inner ones ivory white, outer ones tinged with rose. It thrives well when once established and flowers freely on leafy shoots in June and July. An improved *parviflora* of better constitution with much larger and more attractive flowers and larger more leathery leaves.

M. Wilsonii was discovered by Wilson about 1910 in the high mountains of Szechuen, China, and is considered one of his most beautiful introductions. The slender young shoots are clothed at first with pale brown felt, leaves lanceolate pointed, four to six inches long, dull green and soon smooth above, velvety beneath with a dense coating of pale brown wool; flowers white, three to four inches wide, cup-shaped, pendulous, fragrant, in May and June with the young foliage, each on a woody stalk one or one and one-half inches long, stamens, one-half inch long, rich red. It flowers when quite young, but is most attractive when of sufficient size for one to observe from below the conspicuous contrast of the crimson stamens over the pendulous white flowers.

(Continued on Page Twenty-seven)

Magnolias In Public Parks and Gardens

A Symposium

Cognizant of magnolia's particular adaptability in adding seasonal beauty to parks, arboreta and other public gardens, the editors of the BULLETIN sought and received from the directors of such institutions a symposium of their comments on this family of plants. Readers will note the interesting geographical distribution represented in the series of brief articles herewith. While the discussions are necessarily developed out of large-scale experience, the information, it is hoped, will prove adaptable to the problems of the small gardener.

Magnolias in the Arboretum

ROBERT J. HANSEN*

THE magnolia collection is located along the Upper Road, nearly opposite the south end of the nursery, adjacent and south of Woodland Garden. The site, an attractive area of the Arboretum, will gradually assume its rightful spotlight of beauty in another 15 or 20 years.

The collection has not made a good showing because of the lack of labor force to give them the extra care in the early years. The war years have taken their toll of the magnolias and it is unfortunate that these beautiful flowering trees were one of the many plant families to suffer.

There are numerous species in the collection, most crowded together, close to the Upper Road. Here are a few of the magnolia species: *acuminata*, *Campbellii*, *denudata*, *Fraseri*, *grandiflora*, *Soulangeana* and varieties, *stellata*, *virginiana*, *Watsonii* and *Wilsonii*.

The area will be planned now so that as the trees mature they will be attractively arranged. There is still time to make these corrections. Many of the trees are in sad shape. Some have died and are coming up from the base—others have been injured and will never make good representative specimens. These must be replaced.

Here is a good moment to digress and consider one of the functions of the Arboretum: To display the best specimen plant material

as an example of the habit and growth of the particular species or variety.

Each family or collection is to be planted in the most artistic and attractive arrangement possible. Having fulfilled these requirements of attractive displays of the best plant material, the Arboretum commands a position of authority. It will be an authentic plant library. Others will come here to study—the botanist and nurseryman and the home owner, whether it be to study plant form and texture, growth habits, or foliage, flower and fruit or just to enjoy the beauty of the surroundings.

Returning to the magnolia collection itself we find tulip trees have been planted as a companion tree. These have made fine growth and will assume a position of importance, too.

Recently acquired this fall from Mrs. Else M. Frye are *Magnolias salicifolia*, *Soulangeana alba*, *Thompsoniana*, *virginiana* and *Wilsonii*. Some of these already have been planted in the collection.

Leaving the collection we find in the Williams Camellia Garden, two specimen trees, one of *Magnolia Kobus* and the other *Magnolia Veitchii*. Both are nicely formed, about 10 feet in height.

Perhaps one of the finest specimens as regards form is *Magnolia tripetala*, on the upper path of Rhododendron Glen. Called the Umbrella Magnolia, its large leaves are very distinctive while the fragrance of the greenish-white flowers is far from being pleasant. Near this upper path and in rhododendron beds are several fine *Magnolia denudata*. In the Tenny rhododendron collection is a wide spreading *Magnolia stellata*.

*Mr. Robert J. Hansen, landscape architect, early this year joined the staff of the Arboretum as assistant superintendent.

Magnolias in Philadelphia

HENRY T. SKINNER*

ONE April spent in the Philadelphia suburbs and few doubts will remain concerning the adaptability of magnolias to this particular region, nor will there be any question of the flowery elegance which old specimens can bring to a landscape. Those most frequently seen in older plantings are various of the many forms of the hybrid *M. Soulangiana* making pink, round masses 40 feet high and as many across, and trees to 45 feet or so of the white Yulan (*M. denudata*) both following the first early bloom of *Magnolia stellata*. Such trees as these are found in city yards, on remaining old estates and in unexpected places where the grounds of former mansions have given way to latter day building developments. Under these conditions it is quite amazing to observe how fine specimens can persist in their springtime loveliness after many years of complete neglect from the cultural standpoint. One sometimes wonders what other trees or shrubs are capable of providing so much for so little.

To the last remark one word of caution should, however, be added. Magnolias require practically no pruning and need very little care provided they are suitably planted at the start. They need ample room to develop to full size, and they like a good soil with plenty of plant food, which is also well drained. Magnolias detest wet feet. As an example: the Cucumber tree (*M. acuminata*) has reached 65 feet in height, with a trunk diameter of 34 inches, in well-drained soil on Germantown Avenue in Chestnut Hill. A block away in the Arboretum a languishing specimen is about ready for the axe. This one merely happens to be near a pond where it is too moist.

For those interested in studying the many species and forms (about 30 all told) which are satisfactory in this region, several excellent collections are to be seen, at the Arthur Hoyt Scott Foundation at Swarthmore, at the Arboretum of the Barnes Foundation in Merion, and elsewhere. Such collections in-

clude the native species and the hardier exotics as well as an array of *M. Soulangiana* hybrids to aid in perhaps narrowing one's choice to the four or five best which might well include *M. Soulangiana alba* (white), *amabilis* (pale pink) *Soulangiana* type (good pink) and *Verbanica* (darker), although others are just about as good. The new variety *Waterlily*, a reported hybrid between *M. stellata* and *Soulangiana*, which seems to be a little faster growing than *stellata*, possesses the principal advantage of two or three weeks later blooming. It may thus escape the late frosts which almost invariably catch the Star Magnolia when in flower.

Two species at the Morris Arboretum deserve perhaps special mention for potential park usage. One of these is a good form of *M. Kobus borealis*—an original plant of Arnold Arboretum introduction—with relatively few broad petals which unfold creamy yellow before fading to white. This is free blooming and makes a fine specimen tree, 30 to 40 feet in height. The other is *M. macrophylla*, or Elephant Ear, the largest leaved of any tree which can be grown in this region. Conspicuous foliage, large showy white flowers and gray trunk of this species attract perhaps more attention than any other specimen at the Arboretum.

The Bull Bay, *M. grandiflora*, is somewhat questionable this far north. To be sure, good specimens may be seen in Philadelphia, in Harrisburg, Pa., and as far north as Brooklyn, New York. (This instead of *Ailanthus* should actually have been THE TREE) but winter injury is sometimes severe. It can nevertheless be striking and very successfully used as a wall cover, trained as an espalier. *Magnolia Veitchii*, the more recent English hybrid between *M. denudata* and *Campbellii*, is growing in nearby Delaware but is too young as yet for any opinion regarding its adaptability.

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*Mr. Henry T. Skinner is director of the Morris Arboretum, Chestnut Hill, Philadelphia.

Magnolias in the Parks of Rochester

WILLIAM PITKIN*

THE early flowering forms of the Asiatic magnolias are among the best of our ornamental trees and are very popular. In March or April the white blossoms of the Star Magnolia (*M. stellata*) and the Anise Magnolia (*M. salicifolia*) usher in the new season, although it is to be regretted that their lovely blossoms come so early that they are sometimes severely injured by our late freezes.

At Highland Park the magnificent specimen of the large Kobus Magnolia (*M. Kobus borealis*) shows early in the season hundreds of white blossoms with slight purplish markings and is one of the outstanding trees in our collections. It is followed by the showy Ulan Magnolia (*M. denudata*) with its handsome, sweet-scented flowers. In April the *Soulangeana* hybrids flowering between the Ulan and the Lily magnolias show many colorful forms both at Highland Park and Durand Eastman Park. Oxford Street, with its center grass plot planted with trees of this group, has long been an attractive horticultural feature. This interesting group of hybrids includes White Saucer and *Brozzonii*, another fine white. Also Norbert, *amabilis*, *Verban*, Striped Saucer and Alexander, all white kinds with more or less purplish shading. The real purple or crimson purple varieties include Andre Leroy, Purple Saucer and *Lennei*.

The Lily Magnolia (*M. liliflora*) is quite dark but somewhat tender in our climate, while the very dark Purple Lily Magnolia

(*M. liliflora nigra*) is hardier and more satisfactory.

The Oyama Magnolia (*M. Sieboldii*) is a quite distinctive and satisfactory variety, blooming in May and June after the leaves are formed. It bears a profusion of beautifully formed, small waxy white flowers with a brilliant crimson center and is particularly interesting because its foliage is such a clear green and bud, full flower and fruit are in evidence at one and the same time. It is definitely a tree well worth planting more frequently.

Distinctive characteristics make two other varieties especially attractive . . . the White-leaf Magnolia (*M. obovata*) because the young leaves are silvery white beneath, and the Sweet Bay (*M. virginiana*) for its delicious sweet fragrance during its June and July blossoming period. The Thompson, a hybrid between the Sweet Bay and the Umbrella Magnolia, also has large, very fragrant flowers but is less hardy with us.

Several late-flowering forms from our southern states are fine trees. The large-eared leaves and big creamy-white blossoms of the Fraser Magnolia (*M. Fraseri*) make it a striking landmark. Also the Large-leaved Magnolia (*M. macrophylla*) of which we have several specimens, is very interesting although it is subject to freezing back until well established. The Umbrella Magnolia (*M. tripetala*) gives a tropical aspect to any planting.

The Cucumber tree (*M. acuminata*), while not easily recognized as a magnolia by the layman, forms a beautiful pyramidal large tree and is valuable in the landscape. The flowers are not showy, being yellow-green in color, but the fruits are surprisingly attractive when ripe. A somewhat showier form, the yellow Cucumber tree (*M. cordata*) is smaller and apparently less hardy.

In Rochester's parks magnolias have generally done well in any ordinary rich soil provided it is well drained. The exception is the Sweetbay which requires a moist situation. As already stated, the early flowering forms sometimes have the blossoms injured by late spring frosts but occasionally make a splendid display well warranting their continued use.

*Mr. William Pitkin is superintendent of parks in Rochester, N. Y.

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Severe cold weather will even occasionally injure the flower buds and twigs on the *Soulangeana* group as well as on the Anise Magnolia but generally these perform in a most satisfactory manner.

The greatest enemy is the magnolia scale (*Neolecanium corniparvum*). Where this scale comes into evidence a dormant spraying is essential as little can be done to eliminate the large mature scale in late summer which is very noticeable and causes the leaves to drop.

In our parks and throughout the city we value our magnolias highly and are careful to see that they are well cared for in every way.

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Magnolias in New Brunswick, N. J.

DR. CHARLES H. CONNORS*

EACH SPRING an announcement appears in our local paper: The magnolias are in bloom on 8th Avenue. The following Sunday and succeeding two or three Sundays, people from the surrounding territory flock to the spot and there is a lot of good film wasted. The developer of the subdivision had put a parking down the center of the street and one section, about 800 feet long between two cross streets, was planted, just over 20 years ago, to *Magnolia Soulangeana*, in a double row. It really is a thrilling sight to many people, lasting two to three weeks, depending upon the weather. A combined wind and rain storm will wreck the show.

This is being written in a climate that does not permit the growing of *M. grandiflora*, the most magnificent of the genus. Aside from that one, the most spectacular are those that bloom before the leaves; *M. denudata*, *M. Kobus*, *M. stellata* and the hybrid group of clons, listed as *M. Soulangeana*.

Lowest in stature but exceedingly showy, *Magnolia stellata* forms almost a snowball when it is in bloom. And one of the advantages of the plant is that it blooms when very small. One of its faults is the very early blooming habit, in that late frost or high wind

and rain may ruin the display. Set in a sheltered bay, however, in masses of three or more plants, depending upon the scale of the surroundings, and repeated, it brings joy to the early spring landscape. Often it is planted at too close intervals, necessitating transplanting.

Magnolia denudata is not much planted now, but on older estates where trees have reached good size, it does not need to take a back seat. Against an evergreen background the flowers show up. But on an old estate where the plants may be 75 to 100 years old, it has outstripped its neighbors and, silhouetted against a blue sky, the clear white of the flowers stands out. And in winter, too, the silhouette of the branches and twigs brings added interest to the landscape.

Magnolia Soulangeana and the varieties of this hybrid are more favored by the general public, because of the color in the flowers. One example of large-scale use has been given. Along a mall, spaced to allow full development of the tree, the repetition will carry the eye throughout the season, because the relative coarseness of texture of the leaves makes the plant stand out. Repeated at intervals along a border of trees, in large enough groups to scale with the scene, they develop a rhythm in spring that nothing else can match. However, the writer prefers to have them free-standing, because of the leaf texture. One of the best sites, it seems to me, is in the development of bays, with the magnolias as the interior feature, especially against a background of conifers of soft texture, as hemlocks.

Along the eastern seaboard, and where it will grow, *Magnolia virginiana* has a use to which it is seldom put. In its southern range this plant may become a tree up to 50 or 60 feet high. More to the north it is seen more often in shrub form. However, if it is pruned to a single stem, it becomes almost ideal for the development of a small scale allee. The nearly evergreen glossy leaves, highlighted by reflection from the glaucous underside, emphasize the rhythm that is desirable in such a site. While the flowers are not large or conspicuous, the blooming period is long and the

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delicate fragrance of the flowers increases interest. To this add the novel character of the fruit in its season.

With no other plant is the adage of the old world gardeners more pertinent: Never use a pruning shear. While removal of branches in winter by means of a saw may seem a harmless practice, yet we know that 5 or 10 or 25 years hence, the tree will show the effect of such mistreatment. If we could give our plants the intimate attention they deserve and rub off buds that will grow into branches in the wrong position, we could preserve these plants for many, many years. If we cannot follow this practice, then let us prune them while the twigs are relatively small and while the plant is in the midst of its vegetative growth. Then quick healing will take place and the plant may suffer no harm.

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Magnolias in St. Louis

DR. GEORGE T. MOORE*

AMONG the best ornamental trees and shrubs for the St. Louis region are the magnolias. The flowers are large and attractive, the foliage is massive and tropical in appearance, and the fruit in most species is a worth-while addition in summer and fall. The majority of the magnolias are easy to grow, they stand the city atmosphere and are free from serious diseases and pests. It is true they are rather slow in growth and take a longer time to attain their beauty than most of the common flowering trees and shrubs.

Of the native magnolias only two are really dependable in St. Louis. The Cucumber tree (*M. acuminata*) might be regarded as a timber tree, but here it will not grow to much more than ten inches in diameter in 40 years, which is its life span in this locality. The other is the Sweet Bay (*M. virginiana*) often planted for shade, but it seldom develops into more than a small tree, or a large shrub, producing many trunks. It may live 50 or more years.

*Dr. George T. Moore is director of the Missouri Botanical Garden in St. Louis.

There are several specimens of the Bull Bay (*M. grandiflora*) established in St. Louis, but only in protected locations, since it is very doubtfully hardy. Some years ago Mr. Leonard Matthews bought 50 young trees from a southern nursery. All but one were killed the first winter. This single tree, located very favorably, grew to be 20 feet high with a well-developed trunk, one foot in diameter, in 20 years. It was moved to the Garden in 1922 and lived for ten years longer. The other specimen at the Garden is at least 40 years old, but is not well shaped. It flowers and fruits every year.

Of the Asiatic species *M. Soulangeana* (which is a hybrid) with its many varieties is widely planted as a large flowering shrub. Only occasionally does it develop into a small tree. Because of its early flowering (*M. Soulangeana* var. *Alexandrina* is one of the earliest varieties) these magnolias are particularly desirable for mass planting and as individual specimens on the lawn.

In addition to the above-mentioned species, *M. denudata* is the only other exotic species growing at the Garden. Specimens of native species such as *M. stellata*, *M. tripetala*, and *M. Fraseri* are also to be found there, but require no special discussion.

Raising magnolias from seed is a bit of gardening in which anyone can be successful if a few fundamental directions are followed. Most magnolia seed germinate best when stratified, that is, given a rest period of several months outdoors buried in moist sand and exposed to freezing temperature. The pulp which protects the seed as it comes from the pod must be completely removed. To do this, soak in warm water for several hours, then rasp off the covering by rubbing against a rough surface. Rub with a scouring powder to remove all traces of oiliness. Rinse with cold water. In about three years from the date of sowing, it is possible to have specimens from two to four feet high ready to set out in permanent locations. *Magnolia Soulangeana* and other Asiatic forms which produce basal shoots near the ground are best propagated by layering.

Magnolias in Golden Gate Park

(EDITOR'S NOTE: Officials of Golden Gate Park in San Francisco sent as their contribution to this symposium the following notes from the files of their "Flower of the Week" bulletins. With their permission we are happy to relay them to BULLETIN readers.)

ERIC WALTHER

Botanical Name:

Magnolia Campbellii Hook. f. & Thoms.

Common Name:

"Pink Magnolia"; "Lal Champ" in Nepal.

Source:

Native to the Himalayas in Nepal & Sikkim.

Family:

Magnolia Family (*Magnoliaceae*).

Remarks:

If any plant in this garden deserves such adjectives as "magnificent, unique, finest, etc.," it surely must be this magnolia. Its superior qualities were recognized by the California Horticultural Society in 1940, when it granted this magnolia its coveted award of merit upon the occasion of its flowering here, for the first time probably anywhere in the United States.

Magnolia Campbellii was discovered in Bhotan by Dr. Griffith and named in honor of Dr. A. Campbell, British resident at Darjeeling, the well-known hill station which he founded. In its native habitat, Bhotan, Nepal and Sikkim, *Magnolia Campbellii* occurs at elevations of 7,000 to 10,000 feet, and at times reaches a height of 80 to 150 feet. Such trees, when in bloom, must present an unforgettable sight. By the natives the wood of the trees is known under the name "Lal Champ" and is so much in demand that the species is becoming scarce.

The first living plants to reach England were sent there by Drs. King and Anderson of the Calcutta Botanic Gardens in 1868. Unfortunately, the species continues to be very rare in cultivation, largely because of the fact that young trees will not flower until at least 20 years old or more, and few gardeners have enough vision to look that far ahead.

Botanically, the species is most closely related to the well-known *Magnolia conspicua* with white flowers. It is at times confused with the hybrid *Magnolia x Soulangeana*, none

of whose many forms approach it in beauty, for the clear rose-pink blossoms attain to a diameter of ten inches, with 12 to 15 petals and a delicious, if faint, fragrance.

Culture:

Just like other deciduous magnolias, this, too, thrives in deep, rich but well-drained soil, never becoming very dry, and a location sheltered from cutting winds. Commercially available plants are commonly grafted, so that careful staking is advisable if breakage is to be prevented. Since the buds ordinarily open in February, late frosts may injure the opening buds at times, suggesting selection of a location where the plants are cool and shaded until spring.

P. S.:

Golden Gate Park obtained its original plant in 1924 from Stuart Low & Co. of London, when it must have been about two years old, so that the first flowers borne by this tree were produced in its 18th year.

Botanical Name:

Magnolia x Soulangeana var. *Alexandrina* Hort.

Common Name:

"Lily Tree, Pink Magnolia."

Source:

Garden Hybrid.

Family:

Magnoliaceae or Magnolia Family.

Remarks:

However prejudiced one may be against trees that are leafless in the wintertime, the gorgeous flowers borne in early spring by this and other kinds of *Magnolia* make that genus of paramount importance to all discriminating gardeners. While scarcely as large and beautiful as the flowers of *Magnolia Campbellii*, those of *Magnolia Alexandrina* have the merit of being borne in adequate numbers on even quite young plants, regularly every spring. Its blossoms are sufficiently large, with numerous white petals tinged rose or purple without, so that even without any fragrance they make this magnolia one of the finest of all flowering trees.

The genus *Magnolia* is now known to con-
(Continued on Page Twenty-nine)

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Special Notice
To keep memberships in the Arboretum Foundation in good standing, dues should be paid during the month payable. Memberships more than three months in arrears will be dropped and the BULLETIN will be discontinued.

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All memberships are non-assessable.

*Garden Clubs and Independent Arboretum Units formed after January 1, 1946, affiliated membership, \$10.00 minimum. Special rate privileges to members of Affiliated Garden Clubs and Arboretum Units.

The schedule listed above has the following exceptions:

a. That members of Garden Clubs, affiliated with the Arboretum and having membership of not less than \$10.00, shall be entitled to a \$2.00 or Associate membership.

b. That members of Arboretum Units shall be entitled to a \$2.00 or Associate minimum membership.

c. This schedule applies only to new memberships.

Notes and Comments

IN the Fall issue of the BULLETIN we printed President Maurice Jackson's annual report to the Foundation membership, wherein considerable stress was put upon further integration of the Foundation's activities with those of the University of Washington, with the end-in-view of increasing our contributions to promotion and development of the Arboretum and of effecting operating economies consistent with our program of activities.

We are now happy to report that, with the cooperation and approval of both the University's Arboretum Board and the Foundation's directors, the offices of the Foundation will be moved, not to the campus, but to the Arboretum, adjacent to the director's office. There, it is hoped, the Foundation can be of greater service to the Arboretum and to the public and, at the same time, make available to its program a greater portion of its income from memberships and other sources.

Imminent construction of another building adjacent to the present Arboretum offices—as noted in Mr. Mulligan's quarterly report published in this issue—will release space sufficient to house Foundation activities. It is expected that the move will be made shortly after the first of January, 1948.

1 1 1

One of the most highly prized of published works dealing with horticultural matters, Sargent's *Silva of North America*, originally issued in 14 volumes quarto between 1891 and 1902, at \$350 complete, is again available, in a fine re-publication.

Modern publishing methods made available through the offset lithograph process have produced this exact replica of the valued original, two volumes in one—making seven in all—at a selling price of only \$200. The work contains 740 magnificent plates illustrating the trees of North America north of Mexico.

The publisher is Peter Smith, 351 Fifth Avenue, New York. The book was chosen by a committee of judges as one of the best books by offset in 1947.

It is the hope of the Arboretum management that its library shelves will some day contain this very choice work.

✓ ✓ ✓

Assembled for the regular quarterly meeting, the Board of Directors of the Arboretum Foundation elected the following officers for the coming year:

President, Mr. Maurice Jackson.

Vice-Presidents, Mrs. Carl Ballard, Mr. Darwin Meisnest.

Secretary, Mrs. Charles L. Harris.

Treasurer, Mr. Roy L. Maryatt.

Mr. Jackson outlined to the board steps to be taken immediately to raise additional funds to aid the Arboretum, a program which will occupy the board's chief attention through the coming months. First item on the program is an effort to obtain Foundation memberships among commercial firms throughout the area.

✓ ✓ ✓

The Board of Regents of the University of Washington, at their November meeting, approved the recommendation of the Arboretum Board, under the chairmanship of Gordon Marckworth, dean of the College of Forestry, that the status of Mr. Brian O. Mulligan be changed from acting director and superintendent to director of the Arboretum.

To Mr. Mulligan go the congratulations of the BULLETIN and of the Foundation, whose membership has appreciated in the past year since his arrival how sincere has been his interest in the Arboretum, how skilled, thoughtful and energetic his program, and how gracious his management of affairs in and out of his office.

✓ ✓ ✓

Dean Hugo A. Winkenwerder

In the late days of autumn, the University of Washington Arboretum lost two of its earliest friends through death—Dean Hugo A. Winkenwerder and Mrs. Anna T. Milburn.

Dean Winkenwerder, a member of the Arboretum and Botanic Garden Society of the State of Washington—which organization antedated the present Arboretum Foundation—died suddenly on November 30, bringing to

an end a noble career devoted to the interests of forestry, particularly in this state.

He came to the University as an associate professor of forestry in 1909, and in 1912 became dean of the College of Forestry, serving until his retirement in 1945.

Ever an able administrator, he was acting president of the University from April, 1933, to September, 1934, during which period of time he took on as well the acting directorship of the Arboretum, continuing in that capacity until 1938. It was during his years of active service to the Arboretum that the present firm principles of management were laid down.

His many services to the cause of our great forests are well known.

✓ ✓ ✓

Mrs. Anna T. Milburn

As vice-president of the Arboretum and Botanic Garden Society, Mrs. Milburn's activity on behalf of the University of Washington Arboretum dates from its earliest days, in 1930. She has since served as a member of the board of directors of the Foundation and lent much active support to the many undertakings of that organization.

Her splendid influence has extended even beyond the moment of her death. In her memory her many friends have sent contributions to the Arboretum's Memorial Planting Fund.

✓ ✓ ✓

The Arboretum takes to the air waves, with the beginning of 1948. Station KOMO, Seattle, cooperating with the radio education division of the University of Washington, will introduce a regular fifteen-minute weekly program Saturday, January 3, and every Saturday thereafter, devoted to things of interest in the Arboretum and plans for and progress in its development.

The program, to be known as "Your Arboretum," will take the form of a conversational interview between Director Brian O. Mulligan and Milo Ryan of the BULLETIN editorial board. Plans are to build the programs around the "plant of the week" and to include comment not only on the Arboretum's specimens of this plant, but, in addition, some information on its care and cultivation.

(Continued on Page Twenty-five)

List of Articles on Magnolias

THE following are some references to articles on magnolias extracted from "A Bibliography of Eastern Asiatic Botany," by E. D. Merrill and E. H. Walker (1938):

- Bean, W. J., Garden. 48; 414-416 (1894). Includes general descriptions of 9 Asiatic species.
- *Bean, W. J., Magnolias. New Flora & Silva. 4: 232-240, 2 pl.; 5: 11-19, 2 pl. (1932). A general account of the genus.
- Dallimore, W., The Magnolias. Quarterly Journal. For. 19: 139-148, 2 figs. (1925). Brief descriptions of various species, many from eastern Asia.
- *Dandy, J. E., Key to the Species (Magnolia). In J. G. Millais, "Magnolias." 41-53. (1927).
- *Dandy, J. E., Key to the Species Magnolia. Journal. Roy. Hort. Soc. (London) 52: 260-264, figs 86, 87. (1927). A key to 44 species, including those from eastern Asia, slightly revised from preceding entry.
- Dandy, J. E., The Genera of Magnolieae. Kew Bull. Misc. Inf. 1927; 257-264.
- *Dandy, J. E., *Magnolia sinensis* and *M. Nicholsoniana*. Jour. Roy. Hort. Soc. (London) 53; 115. (1928).
- Dandy, J. E., New or noteworthy Chinese Magnolieae. Notes Bot. Gard. Edinburgh. 16: 123-132, pl. 226. (1928). Includes descriptions of new species of *Maglietia* and *Michelia* with notes on other species of these genera and of *Magnolia*.
- Dandy, J. E., New Magnolieae from China and Indo-China. Jour. Bot. Brit. & For. 68: 204-214. (1930). Includes new Chinese species and varieties of *Manglietia*, *Magnolia* and *Michelia*.
- Dandy, J. E., The Identity of *Lassonia* Buc'hoz. Jour. Bot. Brit. & For. 72: 101-103 (1934). This Chinese genus is considered a synonym of *Magnolia* and the transfers, *M. heptapeta* and *M. quinquepeta*, are made.
- Dandy, J. E., *Magnolia globosa*. Curtis' Bot. Mag. 159; pl. 9467. (1936).
- *Forrest, G., Magnolias of Yunnan. In J. G. Millais, Magnolias. 31-40, 1 pl. (1927).
- Gadeceau, E., Les magnolias a feuilles caduques I—Especes de l'ancien monde. Rev. Hort. (Paris) 1912: 369-373, f. 124-126. Includes the eastern Asiatic species.
- Goldring, W., New Japanese Magnolias. Garden. 45: 101. (1894). Brief notes on several species.
- Graebener, L., Die in Deutschland winterharten Magnolien. Mitt. Deutsch. Dendr. Ged. 14: 34-45, pl. 3-7, 1 map. (1905). Includes general notes on various eastern Asiatic species.
- Graebener, L., Magnolien. Gartenflora. 75: 217-219, 260-261. (1926). Includes general notes on various eastern Asiatic species.
- Hemsley, W. B., The Magnolias and Their Allies. Garden. 8: 269-271. (1875). Includes general notes on various species of *Magnolia*, *Schizandra* and *Kadsura* of eastern Asia.
- Leray, C., Quelques magnolias nouveaux. Rev. Hort. (Paris) 1923: 314-316, f. 96; 337-338, f. 102. Mostly from eastern Asia; these are not the original descriptions.
- *Millais, J. G., Magnolias. i-viii, 1-251, pl. 1-34. (1927). A manual, including keys and descriptions. Chapter III concerns "Magnolias of Yunnan," by G. Forrest. The key to the species is by Dandy, J. E.
- Nicholson, G., The Magnolias (with a colored illustration of *M. parviflora*). Garden. 24: 508-513, pl. 417, 3 figs. Includes several eastern Asiatic species.
- Nicholson, G., *Magnolia Soulangeana nigra*. Garden. 25: 276-277, pl. 434. (1884).
- Nicholson, G., Magnolias. Gard. Chron. III. 17: 515-516, figs. 72, 75. (1895). Includes extensive notes on various eastern Asiatic species.
- Nicholson, G., *Magnolia*. Flora & Silva. 1: 14-22, 1 pl. 1 fig. (1903). Includes descriptions of various eastern Asiatic species.
- Veitch, P. C. M. Magnolias. Jour. Roy. Hort. Soc. (London) 46: 315-322, figs. 186-189. (1921). Includes general notes on various eastern Asiatic species.
- Ward, F. K., Three Indo-Himalayan Magnolias. Gard. Chron. III, 87: 451-452, (1930). Botanical notes on *M. rostrata*, *M. Campbellii* (= *M. mollicomata*?), and *M. globosa* (= *M. tsarongensis*?), the first occurring in China.
- Wilson, E. H., The Chinese Magnolias. Gard. Chron. III. 39: 234 (1906). Notes on six species.

*Available for consultation in the Arboretum library, Monday through Friday, 9 to 5.

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Book Review

The Lily Year Book, 1946, Royal Horticultural Society, Vincent Square, Westminster, London; price \$1.50; bound in cloth.

THIS, the tenth in the series, is the first issued since 1940 and if the paper on which it is printed is, as might be expected, by no means of the quality of its predecessors, the matter it contains is varied in interest and well up to earlier standards. Since the editor is Mr. P. M. Synge, editor of the *Royal Horticultural Society Journal*, and the editorial committee includes such well-known English lily cultivators as Col. F. C. Stern and Mr. Walter Bentley, and a leading botanical authority in Mr. A. D. Cotton, there is good reason for this satisfactory result of their labors.

The variety and value of the contents is well illustrated by the titles of some of the more important articles, and their authors' names.

"The Comparison of Lily Bulbs," by W. A. Constable.

"Cultivation of American Lilies," by J. Coutts.

"Further Observations Concerning the Roots of Lilies," by Dr. M. A. H. Tincker.

"The Genus *Nomocharis*," by David Wilkie.

"A Post-War Review of *Fritillaria* Species," by C. Beck.

"Some of the Newer Lilies Originated in Canada and the U. S. A.," by Isabella Preston.

In addition, the whole story of *Lilium Duchartrei*, together with the plate, has been reprinted from the Supplement to Elwes' "Monograph of the Genus *Lilium*."

Mr. Constable's account, illustrated by two large folding plates showing bulbs of 36 species, varieties, forms, or hybrid lilies will be most useful to all lily growers, since it will considerably help in identifying the plants in their dormant state. To the best of my knowledge no such drawings of bulbs have been gathered together in any quantity since Dr. Wallace's "Notes on Lilies" of the 1870's.

Mr. Wilkie's review of the genus *Nomocharis* is equally timely and informative, since no comprehensive account of these near relatives of the lilies has been published since 1925 and 1926 (by W. E. Evans, in "Notes from the Royal Botanic Garden, Edinburgh"). Here he gives us very readable descriptions, with habitat details, of 15 distinct species and their several varieties, together with some notes on hybrids and cultivation. As the author has for many years been on the staff at Edinburgh and has had access to the unique herbarium there, his work must be regarded as authoritative, reinforced as it is by 14 of his own excellent photographs of individual flowers or flowering plants.

Miss Preston's descriptions of her more recent lily hybrids—"Mosquito," "Typhoon" and "Corsair"—together with the notes she has assembled from other lily breeders in Canada and the U. S. A., illustrate clearly how rapidly the species are being supplanted by hybrids of presumably superior garden value. It is well to have such records of their origin, with proper descriptions of their characters and colors, before they, too, are submerged by their successors. Here also the photographs form not the least valuable part; that of *L. aurelianense* x *L. Henryi* is particularly outstanding.

Space does not permit us to deal further with the contents in any detail, except to say that there are full notes of the lily group meeting and discussions in 1946, of awards given to lilies and fritillaries in London between 1942 and 1945, and that many of the lesser articles and contributions contain items of interest to American as well as British cultivators of these most fascinating, often perverse and unpredictable, but frequently beautiful plants. The very complete index is only to be expected in a publication of this kind by the Royal Horticultural Society. At the published price it should deservedly be in great demand on both sides of the Atlantic.

B. O. M.

Twenty-one

Report on the Arboretum

(Continued from Page Three)

"Ornamental Shrubs and Woody Vines of the Pacific Coast," E. Graham and Prof. H. E. McMinn (1941).

"Flora of Alaska and Yukon," E. Hulten, Parts I to VI (1940-1945).

Staff Changes

Mrs. Dorothy Barton, secretary since June 30, 1947, left us early in October on account of serious family illness. Her place has been filled by Mrs. Patricia Prindle.

Dr. Walter Naumann, assistant grower for two years, had unfortunately also to leave Seattle in September for Texas for a similar reason.

Al Howe, one of the Arboretum crew, has taken his place in the greenhouses and he in turn has been replaced by F. LeRoy White. Temporarily we also have John Ross, brother of our truck driver, working with the crew during the busy winter months of clearing and preparing land, making a total of ten men thus employed.

Miscellaneous Items

Through the cooperation of the city engineer (Mr. Charles Wartelle) and his department, supplies of fallen leaves from the surrounding neighborhood are being dumped for Arboretum use in the parking lot near the Madison Street playfield. Our own supplies

are insufficient for our needs, which in the future are likely to become greater as the cultivated areas increase in extent.

From the city's former dump on the southwest side of the Arboretum on 29th Avenue North, a quantity of stone blocks was obtained; some of these are now being utilized to build a low stone wall along the base of the bank behind the greenhouses in which are being planted suitable small shrubs or rock plants. This dump area has been leveled by the Park Department; its building, which at present is situated in the Arboretum near the maple section, just west of the boulevard, will in due course be moved up to 29th Avenue, thus giving us more space for ornamental planting in what can be made an attractive corner.

Another wooden, single story building 50 feet long and 25 feet wide, is being released by the Federal Works Agency for Arboretum purposes. This will be placed on the north side of and parallel to the present offices and will form a most useful and welcome addition to our present very cramped space, besides providing much-wanted facilities for the convenience both of visitors and staff.

1 1 1

Woodland Garden, the Arboretum project of the West Seattle Garden Club, will be recipient of proceeds from a tea to be given by the Club on Wednesday, February 4, at the West Seattle Community Y. M. C. A.

Mrs. Kenneth L. Mead, chairman, and her assistant, Mrs. Merritt Miller, have engaged Mr. Robert Hansen, assistant superintendent of the Arboretum, to speak on "Landscaping for the Small Home."

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ARBORETUM NOTEBOOK

This department is published for correspondence and pertinent comments by experienced growers on interesting plants and their culture. We solicit your questions but space limitation necessitates the publishing of only such answers as we deem of general interest.

NEWS has been received in Seattle that Mr. K. Wada, the Japanese nurseryman who supplied many plants of magnolias, Japanese Maples, camellias and other plants to the Arboretum prior to the war, is still alive (contrary to rumors of his decease) and continuing the business at Hakoneya Nurseries, Numazu-shi, Japan.

During the war he lost his home, wife and child and much material, equipment and personal belongings. The house has now been rebuilt and the best varieties of cultivated plants have been maintained, as well as a small collection of the native alpine, to which Mr. Wada expects to add next season.

Mrs. A. C. U. Berry of Portland, Oregon, sends the following list of magnolias growing in her garden:

Two *M. mollicomata*, two *M. Watsonii*, two *M. hypoleuca*, *M. Veitchii*, *M. Dawsoniana*, *M. Sargentiana*, *M. cordata*, *M. Campbellii* (20 feet high and hasn't blossomed yet) *M. sinensis*, *M. Soulangeana Brozzonii*, *M. macrophylla*, *M. parviflora*, *M. parviflora semi-plena*, *M. mollicomata fastigiata*, *M. mollicomata x Campbellii*, *M. stellata*, *M. stellata rosea* (if this is from a cutting from Clark's nursery it is really a deep-colored form), and *M. grandiflora*.

Mrs. Berry writes: "We plant properly; a big, deep hole filled with good soil, leaf mold and peat; arrange for drainage if necessary; plant firmly and well water in. That's all. After they get a start they take care of themselves."

I have read your interesting article on Flowering Cherries in the ARBORETUM BULLETIN and enjoyed it very much. I was in Japan while I was in the Marine Corps and I have seen many of the trees that you describe. While I was there I started to dream and hope some day I could plant some of the cherry trees at my home. Could you please tell me where I could buy these trees and also do you think they would grow in Ohio?

Very truly yours,

HARRY D. CORNILLE,

R. F. D. No. 1, East Liverpool, Ohio.

I have the following ten winter blooming shrubs in my garden:

1. *Arbutus Unedo* (Strawberry Tree)
2. *Camellia Sasanqua* (Winter-flowering Camellia)
3. *Chimonanthus fragrans* (Winter Sweet)
4. *Cornus Mas* (Cornelian Cherry)
5. *Garrya elliptica* (California Garrya)
6. *Jasminum nudiflorum* (Winter Jasmine)
7. *Lonicera fragrantissima* (Winter honeysuckle)
8. *Prunus subhirtella* var. *autumnalis* (Winter flowering cherry)
9. *Viburnum fragrans* (Fragrant Viburnum)
10. *Viburnum Tinus* (Laurustinus)

None of the above shrubs are rare. They can be found in most nurseries and certainly on one of our sunny winter days, when tempted to

walk in the garden, all of these shrubs or indeed any one shrub will add to the pleasure of such a walk.

Flowers during the dark days of winter always have a peculiar grace of their own. They may not have the elegance, brilliancy nor splendor of some summer-flowering blossoms, often they may be soaked with the rains, but the fascination of finding them on our sunless as well as sunny days more than compensates for their possible imperfections.

Arbutus Unedo. The Strawberry Tree takes its common name from its berry which truly resembles a strawberry. Usually it fails to form fruit unless there is another shrub of the same genus in the same neighborhood. The blossoms, a pinkish-ivory color, resemble the drooping clusters of our *Arbutus Menziesii* but the Strawberry tree, unlike the Madrona, seldom grows over 15 feet high in this locality. It has handsome red bark with abundant dark evergreen foliage. The manner of growth is very informal and needs a bit of pruning occasionally to keep it within bounds. While it prefers a fairly acid soil it will do well in most positions, beginning to bloom in early October and continuing through the winter.

Camellia Sasanqua is well known and needs no description. There are pink, red and white, single and double flowering varieties, blooming from October through January. Some seasons they take offense at something and refuse to bloom. One of my garden friends said, "Root prune them, it scares them to death and they begin to bloom." I hope that may help. Their form of growth is more open and less formal than *C. japonica*, the spring-blooming variety.

Chimonanthus praecox (fragrans) is a deciduous shrub from China growing from three to ten feet high and is considered a little tender; at least it seems to blossom more profusely if planted against a wall for protection. It likes lots of sun and shelter from winter winds. The creamy-yellow flowers are fragrant with a mild, honeysuckle perfume. There is nothing striking about the shrub itself nor are the blossoms conspicuous but any fragrant blossoms in the middle of the winter is worth treasuring. It appreciates a mulch of manure in October and a little superphosphate dug into the soil when the buds begin to open. There is a more vigorous variety, *C. f. grandiflorus*, with larger but fewer and less fragrant flowers.

Cornus Mas, or as it is better known, the Cornelian Cherry, is more of a tree than a shrub and it has very little resemblance to any other wood I know. It is deciduous, but suddenly in the midst of winter the bare branches are literally covered with small yellow blooms. It looks like sunshine on a dull day. It may grow to about 25 feet and mine is more or less spreading. I'd like it rising from a bed of snowdrops but the earth about mine is too shady for snowdrops. The English people use the scarlet "cherry" (the fruit that comes in summer) for jam.

Garrya elliptica, a Californian evergreen, is an unusual shrub with rough, silvery-green

leaves. In January or February the flowers form long catkins, sometimes eight inches in length, very graceful, persisting for a long time. It likes sun and sand like many California shrubs and in this country prefers a sheltered position. It was named by David Douglas for his friend, Nicholas Garry, secretary of the Hudson's Bay Company.

Jasminum nudiflorum likes to "vine." It throws out its long branches which root at the ends wherever they can dig in the earth. About the first of November up and down the bare stems begin to open bright-eyed, buttercup-yellow blossoms, the blooms continuing well into spring. Branches with tight buds, if brought into a warm room, open willingly and quickly. The Naked Jasmine is at its best when allowed to sprawl along the ground following its own sweet will, fairly forming a thicket.

Lonicera fragrantissima. This honeysuckle is rather rampant for the small garden. It is definitely a shrub, not a vine as are most of the other honeysuckles. It has bright green leaves that have a fresh look in the winter as it is almost evergreen in my garden, which is not always the case. The blooms are rather sparse, growing in pairs, small, cream colored and delightfully fragrant, so much so that one is con-

scious of its fragrance when passing along the path. It likes as sunny a spot as possible and can be kept in check by pruning after blooming. I find it is more floriferous if the roots are kept fairly moist in summer. It also appreciates a mulch of manure early in the spring.

Prunus subhirtella var. *autumnalis*. This winter-flowering cherry gives me more pleasure. I am sure, than any other one plant in my garden. It is not a shrub but a tree of open growth reaching out long arms, and in the winter when every branch is all but covered with tiny, dainty, baby-pink blossoms, nothing is left to be desired. Now, early in November, the first flowers are opening and it blooms all winter with a fresh burst of extra loveliness in March. Planted among the deep garden firs in my woods it is a jewel but it is equally lovely in the city by an entrance door or near a window where the blossoms can be seen from within. It is, of course, deciduous, but the tree is fine in the summer for a shade tree. Branches cut while in bud are easily forced into bloom and are long lasting in water.

Virburnum fragrans is a handsome bush at any time of the year. In the summer it has an elegance surpassed by few shrubs. It has beautifully formed leaves with a firm quality and red stems. In October the leaves fall and the bunches of tiny flowers burst out almost before one is aware of them, each bunch a miniature bouquet. It is the first to begin the winter bloom and the blossoms are as weather resistant as *Laurustinus*. I have read of a deep pink form but most bushes have a white, pink flushed blossom standing out on the bare branches with great courage and beauty. Some years the leaves turn a reddish-brown and many stay on the branches until midwinter, making a rich tracery against a red brick wall. This is one of Mr. Farrer's introduction from Kansu, China.

Virburnum Tinus (*Laurustinus*) has some blooms most of the year, summer and winter, but in September the number of blossoms begin to increase and all through the winter months the trusses of white flowers tinged with pink are charming against the dense, evergreen, glossy foliage. This shrub will grow eight or ten feet high but it makes interesting hedges cut back in a formal box. After the flowers there may be peculiarly shaped berries of deep, royal blue. *Laurustinus* is not particular about position or culture. It grows equally well in sun or shade, under trees or on the north side of the house. It is a fine evergreen at any season.

G. T. D.

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Magnolia macrophylla was a gift to me a few years ago and while I have no expectation of ever seeing it in bloom I am perfectly satisfied with the joy I have in its magnificent foliage. The leaves range from 12 to 24 inches long and are a soft, clear green that catches the eye from nearly every corner of the garden. I feared at first the tree might have a tropical influence not suitable in my woodland garden but each year I look forward to the opening of the big leaves with keen delight. In the fall the top of the leaves turn a beautiful cinnamon brown while the under side is a silvery lavender, truly a challenge to the flower arranger.

G. T. D.

1 1 1

Notes and Comments

(Continued from Page Nineteen)

Readers of the BULLETIN are invited to comment on the program as it develops and to send in occasional inquiries which may become the basis for discussion. Watch your local newspaper for broadcast time.

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Magnolias—American Species

(Continued from Page Seven)

M. macrophylla and *M. tripetala* are conspicuous for their very large tropical-looking foliage. The leaves of *M. macrophylla* are from 16 to 30 inches in length and from 10 to 12 inches in width, the upper surface a light green and the underside a silvery white. The leaves on a very young tree in our garden measure 13 inches wide by 24 inches long. The flowers are 10 to 12 inches across and are composed of six white fleshy petals, with a purple spot at the base. It is considered by some to be the most desirable of the deciduous American species.

The larger leaves of *M. tripetala* in our garden measure ten inches wide by 22 long. The flowers are large, yellowish-white, having six to nine petals, blooming in May and into June. The odor of these flowers is not as agreeable as that of most magnolias. Cultivation about the roots of *M. tripetala* discloses the fact that its roots are as aromatic as any other magnolia. The seed pods are long, cone-

shaped and rosy-red, and the seeds scarlet when ripe. The tree blooms when quite young and makes a very tropical-looking place in the garden. *M. Fraseri*, the mountain magnolia, was also discovered by John Bartram in the 1770's and was later sent to England by John Fraser. It is a native of the western Carolinas and Georgia, through Alabama to Louisiana. The tree attains a height of 30 to 50 feet, the leaves a foot or more long. The flowers are fragrant, pale yellow turning white, eight to ten inches across.

The last of our native deciduous species is *M. cordata*. Mr. E. H. Wilson in "Aristocrats of the Garden" gives the following interesting account: "This medium-sized tree has beautiful, cup-shaped yellow flowers and its history is more than ordinarily interesting. It was originally discovered by the elder Michaux in the neighborhood of Augusta, Georgia, some time between 1789 and 1796 and by him or his son introduced into France. The trees now in cultivation are derived from these original introductions of Michaux. All effort to rediscover this magnolia was futile until about ten years ago (1926) when Mr. Louis A. Berckmans accidentally happened upon it in a dry wood, some 18 miles south of Augusta."

These American deciduous species are suitable for woodland gardens, parks and along the boulevards where they can be given ample room to develop their exotic beauty. Every collection of magnolias should include them all, but they are not as well suited to the smaller gardens as some of the Asiatic deciduous species and their hybrids.

There are two native evergreen species: *M. grandiflora*, so named by Linnaeus, and *M. virginiana (glauca)*. *M. grandiflora* is the most beautiful and desirable of the American species and its varieties will compete for top place on any list. The foliage is magnificent the entire year and the beauty and fragrance of its large waxy white blooms is unsurpassed. The blooming period extends throughout the summer and early autumn, when practically all other trees have finished flowering. This magnolia is commonly called laurel magnolia as its glossy, deep green, oblong leaves resemble the English laurel. *M. grandiflora* is



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surpassed in beauty by several of its varieties. Millais lists three varieties. *M. grandiflora* var. *lanceolata*, the under surface of the leaves rusty red-brown; *M. grandiflora* var. "*Goliath*," smooth, glossy and rounded leaves, immense flowers, and *M. grandiflora* var. *Gloriosa*, common in North America, has flowers 14 inches across, the leaves brown on the under surface. "*M. grandiflora* var. *exoniensis*," he says, "is by no means the best as it takes many years before it blooms." The variety sold in Seattle answers the description given var. *gloriosa*, blooming while very young, having the immense flowers and a decided reddish brown on the underside of the leaf. A variety called *M. grandiflora* "St. Mary's" has been developed in Florida and is said to be an improvement on other forms. Perhaps someone can report on "St. Mary's."

One of the first, if not the very first, American magnolias taken to England was *M. virginiana* (*glauca*) in 1688 by John Banister. It is a small tree up to 50 feet in favorable locations and is commonly called swamp bay or sweet bay. The leaves are persistent in the south and semi-deciduous in the north. They are of a leathery texture, blue green above, silvery underneath, five or six inches in length. The flowers are white, globular, sweet scented, two or three inches across, blooming over a long period in June and July. It grows easily from seed, blooms while still very young and should be included in every collection.

1 1 1

Magnolias In Victoria, B. C.

(Continued from Page Eleven)

M. grandiflora. Native of southeast United States, this is the most stately and imposing of evergreen trees. With us in the north it is seen with improved forms planted mostly on south or west walls, but in sheltered places close to the coast it is quite hardy in the open, provided the soil is deep and well drained. The ordinary southern *M. grandiflora* is a big tree, 50 to 80 feet, and does not bloom until well matured, but its improved forms mostly with larger flowers will bloom when quite

young, in fact two-year grafts often will bear one or two of its beautiful flowers.

M. grandiflora Goliath. This stiff-branched ornamental carries four- to eight-inch, undulated, oval-oblong leaves the underside of which are thinly covered with a red brown tomentum. Its ivory white, strongly scented flowers, each containing 8 to 10 broad petals, when expanded are like huge tulips measuring 8 to 10 inches across.

M. grandiflora lanceolata. This form has narrower sharp-pointed leaves and the large flowers are also borne on quite small plants.

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The Missouri Botanical Garden

(Continued from Page Five)

- (5) Publications. Technical papers, the results of scientific work by staff and students in the Henry Shaw School of Botany, appear four times a year in the *Annals*. A "Flora of Panama" is now in process of publication. A monthly *Bulletin* of general interest emphasizing horticultural and botanical topics under development at the garden.
- (6) Instruction. Besides formal courses offered in the Henry Shaw School of Botany by members of the University and garden staff which lead to advanced degrees, a course for amateurs in horticulture and garden practice is offered each year. Provision for apprenticeships in gardening is also made.

General Garden activities not previously mentioned include supplying speakers on garden subjects to garden clubs and all sorts of organizations; during 1946 some seventy talks by members of the staff were given. Hundreds of inquiries on botanical and horticultural questions are answered by telephone and letters. These come not only from St. Louis and vicinity, but from practically every state in the union as well as from abroad. The Garden is the definitely recognized center throughout the world for certain types of information.

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Magnolias in Golden Gate Park

(Continued from Page Seventeen)

sist of about 35 species, native to North and Central America and Asia. It was named after Mons. Pierre Magnol, director of the Botanic Garden at Montpellier, 1638-1715. Our present plant is of hybrid origin, being one of several seedlings that resulted from the crossing of *Magnolia denudata* and *M. liliflora*, both parents being originally from China.

The name "Soulangeana" commemorates the first man to make this cross, this having been Chevalier Soulange-Bodin of Fremont, formerly an officer of Napoleon's armies, who spent his retirement in the pursuit of horticulture, and, besides raising these fine magnolia hybrids, also was the founder of the National Horticultural Society of France.

Since the production of its first flowers in 1826, numerous other forms of this cross have come into cultivation of which this one, next to *Magnolia Lennei*, is probably the finest.

Culture:

Like most deciduous trees from Chinese sources, this, too, prefers deep, rich, yet well-drained soil kept sufficiently moist during the dry California summer. Shelter from cutting

winds is advisable if the blossoms are to last and be undamaged. No pruning needs be done beyond the training required by young trees into the best possible shape.

Propagation:

Usually these Magnolia hybrids are grafted on seedling stock, as cuttings root only with difficulty. Seeds, even when available, will not produce these varieties true to name.

1 1 1

The University's caterpillar tractor has been called into Arboretum service, for grading operations on the old dump site adjacent to Lake Washington Canal.

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INDEX TO VOLUME X (1947)

- Abbott, Harold T., 2:7*
- American Forestry Assn., 2:4
- Arboretum, Activities Spring 1947, 2:1
- Bulletin, About Our Name, 2:19
- Director Speaks at Conference, 3:33
- Foundation, Board of Directors
New Members 1947-48, 3:18
- — Officers, 1947-48, 4:19
- — President's Report, 3:20
- Library, Hours available, 4:20
- — References on Magnolias, 4:20
- Notebook, 1:30, 2:30, 3:25, 4:23
- Radio Program, 4:19
- Report, An Excerpt, 3:1
- , Report on (Fall 1947), 4:1
- — Additions to Library, 4:3
- — Azalea Way, 4:3
- — Nursery, 4:3
- — Planting, 4:2
- — Staff Changes, 1:18, 4:22
- — Woodland Garden, 4:2
- , Winter Work at the, 1:7
- Arboretum, University of Idaho,
the Charles Houston Shattuck,
2:12
- Arbutus Unedo, 4:23
- Arecastrum Romanzoffianum, 1:29
- Arnold Arboretum of Harvard
University, 3:9
- Asplenium exiguum, 1:29
- Azaleas and Rhododendrons
Notes on Culture in a St. Louis
Suburb, 2:25
- Azaleas, Sources for Plants,
Supp. to Winter 1946 List, 1:32
- Barbre, C., 2:25
- Berberis triacanthophora, 2:8
- Berry, Mrs. A. C. U., 4:23
- list of magnolias, 4:23
- on planting magnolias, 4:23
- Biddulph, Susan Fry, 2:17
- Book Reviews
- American Lily Yearbook for 1946,
2:29
- American Species of Amelanchier,
3:23
- Camellias in America, 1:26
- Cornell Plantations, The, 3:23
- Lily Year Book, The, 4:21
- Botanical Garden, Univ. of Calif.
(Berkeley), 1:12
- Camellia Unit, 1:12
- Herbaceous Garden, 1:12
- Palmetum, 1:13
- Rhododendron Collection, 1:12
- Rosarium, 1:12
- Strawberry Canyon, 1:12
- Bruckenthalia, 1:9
- spiculifolia, 1:10, 3:13
- Calluna, 1:19
- vulgaris, 1:10, 3:13
- — Varieties, 1:11, 3:13
- Camellia japonica, 1:26, 4:23
- reticulata, 1:13
- Sasanqua, 4:23
- Show, Seattle's Third Annual, 2:27
- *Numbers refer to issue number
and page, i.e., 2:7 means No. 2, p. 7
of Vol. X (1947)
- Camera Competition Winners, 1947,
3:33
- Ceterach Dalhousiae, 1:29
- Chamaecyparis obtusa, 1:22
- pisifera, 1:22
- Chamaerops humilis, 1:29
- Cherries, Flowering, 2:14
- Chimonanthus praecox (fragrans), 4:23
- Chionodoxa Luciliae, 4:11
- Cistus formosus, 3:26
- Clematis Jackmanii, 3:25
- Colchicum, 1:15
- Connors, Dr. Charles H., 4:15
- Cornille, Harry D., 4:23
- Cornus canadensis, 2:30
- florida, 2:30
- — rubra, 2:30
- Kousa, 2:30
- Mas, 4:23
- Mascula, 2:30
- Nuttalli, 2:30
- Corylopsis platypetala, 2:7
- Coulee Violet, 1:2
- Crabapples, Flowering, Are Becoming
Increasingly Popular, 3:5
- Crocus aureus, 1:14
- biflorus, 1:15
- — pusillus, 1:15
- — Weldenii, 1:15
- — Weldenii alba, 1:15
- chrysanthus, 1:14
- etruscus, 1:15
- Imperati, 1:14
- Korolkowi, 1:14
- medius, 1:16
- moesiacus (aureus), 1:14
- ochroleucus, 1:16
- pulchellus, 1:16
- sativus, 1:16
- speciosus, 1:16
- — Aitchisoni, 1:16
- — albus, 1:16
- — Artabir, 1:16
- — Cassiope, 1:16
- — globosus, 1:16
- — Pollux, 1:16
- stellaris, 1:15
- susianus, 1:15
- Tomasinianus, 1:15
- vernus, 1:15
- zonatus, 1:16
- Cryptomeria japonica, 1:22
- Daboecia, 1:9, 3:13
- azorica, 1:11
- polifolia, 1:34, 3:13
- — alba, 1:34
- — rosea, 3:13
- Daphne, Cneorum, 2:33
- Genkwa, 3:25
- Deters, Merrill E., 2:12
- Distylium racemosum, 2:31
- Eaton, Georgia N., 3:15
- Editorial, 1:18
- Elves of the Winter Woodland, 1:14
- Epigaea asiatica, 3:32
- repens, 3:32
- Erica, 1:9
- arborea, 1:9
- — alpina, 1:9
- australis, 1:9
- carnea, 1:9
- — Varieties, 1:9
- ciliaris, 1:9, 3:13
- — Hybrids, 3:13
- — Varieties, 1:9
- cinerea, 1:9, 3:13
- — Hybrids, 3:13
- — Varieties, 1:10
- darleyensis, 1:10
- hybrida "Dawn," 3:13
- lusitanica, 1:10
- Mackaii, 1:10, 3:13
- mediterranea hybrida, 1:10
- stricta, 3:13
- terminalis, 1:10
- Tetralix, 1:10, 3:13
- — Varieties, 1:10, 3:13
- vagans, 1:10, 3:13
- — alba, 1:10
- — Varieties, 1:10, 3:13
- Watsoni, 3:13
- Williamsi, 1:10
- Eriogonums, 1:3
- thymoides, 1:3
- Erythea armata, 1:29
- edulis, 1:29
- Forestry, Arboreta Develop Interest In,
2:4
- Major Points American Forestry
Program, 2:6
- Frye, Else M., 3:16
- Fuchsia "America," 3:29
- "Aurora Superba," 3:29
- "Autumnale," 3:29
- "California," 3:29
- "Carla," 3:29
- "Claret Cup," 3:29
- "Crescendo," 3:16
- "Cupid," 3:29
- "Erecta Novelty," 3:29
- "Flamingo," 3:16
- "Gay Senorita," 3:16
- "Inca Maiden," 3:29
- "Jules Daloges," 3:16
- "Lady's Eardrops," 3:15
- "Little Beauty," 3:29
- "Lucky Strike," 3:16
- "Martha Werle," 3:29
- "Mrs. G. Monk," 3:29
- "Mrs. Rundle," 3:29
- "Otto," 3:16
- "Patty Evans," 3:16
- "Prince of Orange," 3:29
- "Rose of Castile," 3:16
- "Rose of Denmark," 3:16
- "Seventeen," 3:29
- "Sunset," 3:29
- "Thomasinia," 3:29
- "Tom Thumb," 3:29
- "Whitemost," 3:16
- Fuchsias, A Symposium, 3:15
- , for All-summer Bloom, 3:15
- , Some General Notes on, 3:15
- Gaillardia aristata, 2:17
- grandiflora, 2:17
- megapotamica, 2:17
- pulchella, 2:17
- Gaillardias, The Gay, 2:17
- Galax aphylla, 3:17
- Garden of the Antipodes, 1:22

- Garden, Chinese, 1:22
 —, English, 1:22
 —, of Nippon, 1:21
 —, of the Nations, A, 1:21
Garrya elliptica, 4:23, 24
Gaulnettya, 3:32
Gaultheria antipoda, 3:17, 3:25
 — *depressa*, 3:17
 — *Miqueliana*, 3:17
 — *nummularioides*, 3:17
 Goodspeed, T. H., 1:12
 Graham, Donald G., 2:20
 Groundcovers, 3:17
- Hamblen, Frances G., 1:1
 Hanley, Elizabeth H., 2:14
 Hansen, Robert, 1:19, 4:12
 Heather for the Pacific Northwest, 1:9
 —, Summer-Flowering, care and propagation, 3:13
 Heyer, John W., 2:9
Hunnemannia, 2:31
- Importation of Rare plants from England, 1:30
- Jackson, Mr. Maurice, 3:19
 Jarvis, Laura B., 2:29
Jasminum rubiflorum, 4:23, 24
 Johnson, A. T., 4:8
- Kaylor, Joseph F., 2:4
 Kerria, 3:25
 Kingdon Ward Expedition, 2:34
Kolkwitzia amabilis, 2:8
 Krauss, Arthur J., 3:33
- Lamb, Frank H., 1:21
 Landscape Design vs. Decorating, 3:7
Lapageria rosea, 1:13
 Layritz, Richard, 4:10
Ledum columbianum, 2:30
 — *groenlandicum*, 2:30
 — *nipponicum*, 2:30
 — *palustre*, 2:30
 Lee, Katherine, 3:15
 Lem, Halfdan, 3:11
Leucopogon Fraseri, 2:31
Leucothoe Davisiae, 3:32
 — *Keiskei*, 3:32
- Lewisia rediviva*, 1:34
 — *Tweedyi*, 1:31
Lilium amabile, 2:10
 — *amabile luteum*, 2:10
 — *candidum*, 2:9
 — *centifolium*, 2:10
 — *cernuum*, 2:10
 — *chalcedonicum*, 2:9
 — *concolor*, 2:10
 — *elegans-Thunbergianum-umbellatum-dauricum* group, 2:9
 — *elegans-umbellatum-dauricum* group, 2:10
 — *formosanum*, 2:10
 — *Henryi*, 2:10
 — *hybrids*, 2:11
 — *longiflorum*, 2:10
 — *Martagon album*, 2:10
 — *Maxwill*, 2:10
 — *testaceum*, 2:9
 — *tenuifolium*, 2:10
- Lily Breeding Program, A Commercial, 2:9
- Loiseleuria procumbens*, 3:32
Lonicera fragrantissima, 4:23, 24
 — *praeiflorens*, 2:7
Magnolia acuminata, 4:7, 12, 13, 14, 15, 16
 — *Alexandrina*, 4:17
 — *Campbellii*, 4:6, 7, 9, 12, 13, 17
 — *conspicua*, 4:10, 17
 — *cordata*, 4:11, 14, 26
 — *Delavayi*, 4:7
 — *denudata*, 4:7, 9, 11, 12, 13, 14, 15, 16, 29
 — *Fraseri*, 4:12, 14, 16, 26
 — *globosa*, 4:8
 — *grandiflora*, 4:7, 9, 11, 12, 13, 15, 16, 26, 27
 — — *exoniensis*, 4:27
 — — *ferruginea*, 4:9
 — — *Gloriosa*, 4:9, 27
 — — *Goliath*, 4:9, 27
 — — *lanceolata*, 4:26, 27
 — — "St. Mary's," 4:27
 — *hypoleuca*, 4:6, 11
 — *Kobus*, 4:6, 8, 12, 15
 — — *borealis*, 4:8, 13, 14
 — *Lennei*, 4:29
 — *liliflora*, 4:7, 9, 14, 29
 — *nigra*, 4:14
 — — *purpurea*, 4:11
 — *macrophylla*, 4:7, 9, 13, 14, 25
 — *mallicomata*, 4:7, 9
 — *obavata*, 4:9, 10, 14
 — *affinialis*, 4:6
 — *parviflora*, 4:11
 — *salicifolia*, 4:7, 8, 11, 12, 14
 — *Sargentiana*, 4:7, 9, 11
 — — *robusta*, 4:9
 — *Sieboldii*, 4:7, 8, 14
 — — (*parviflora*), 4:7, 8
 — *sinensis* (*Nicholsoniana*), 4:8
 — *Soulangeana*, 4:9, 10, 12, 13, 15, 16
 — — *alba*, 4:9, 12, 13
 — — *Alexandrina*, 4:9, 10, 16
 — — *amabilis*, 4:13, 14
 — — *Brozzonii*, 4:9, 10, 14
 — — *Lennei*, 4:9, 10, 14
 — — *nigra*, 4:9, 10
 — — *rustica rubra*, 4:9
 — — *speciosa*, 4:9
 — — *varieties*, 4:15
 — — *Verbanica*, 4:13
 — — *Waterlily*, 4:13
 — *splendens*, 4:6
 — *Sprengeri*, 4:9
 — — *diva*, 4:9
 — *stellata*, 4:7, 8, 10, 12, 13, 14, 15, 16
 — — *rosea*, 4:27
 — *Thompsoniana*, 4:9, 12
 — *tripetala*, 4:7, 12, 14, 16, 26
 — *Veitchii*, 4:9, 12, 13
 — *virginiana*, 4:9, 11, 12, 14, 15, 16
 — — (*glauca*), 4:26
 — *Watsonii*, 4:8, 11, 12
 — *Wilsonii*, 4:7, 11, 12
- Magnolias*, American Species, 4:6
 — *buying*, 4:7
 — *In English Gardens*, 4:8
 — *In Golden Gate Park*, 4:17
 — *In New Brunswick, N. J.*, 4:15
 — *In Philadelphia*, 4:13
 — *In Public Parks & Gardens*, A Symposium, 4:12
 — *In St. Louis*, 4:16
- *In The Arboretum*, 4:12
 — *In The Parks of Rochester, N. Y.*, 4:14
 — *In Victoria, B. C.*, 4:10
 —, *List of Articles on*, 4:20
 — *pruning and shaping*, 4:13
 — *raising from seed*, 4:16
 — *watering*, 4:7
Malus arnoldiana, 3:6
 — *atrosanguinea*, 3:5
 — *baccata columnaris*, 3:6
 — *baccata mandshurica*, 3:5
 — *flaribunda*, 3:5
 — *Halliana Parkmani*, 3:6
 — *hupehensis*, 3:5
 — *micromalus*, 3:6
 — *robusta*, 3:30
 — *Sargenti*, 3:5
 — *spectabilis*, 3:6
 — — *varieties*, 3:6
 — *toringoides*, 3:6
 Mayer, Paul A., 1:9, 3:13
Meconopsis betonicifolia
 — *var. Baileyi*, 2:35
 Milburn, Mrs. Anna T., 4:19
 Missouri Botanical Garden, 4:4
 Moore, Dr. George T., 4:4, 16
 Mulligan, B. O., 1:7, 2:1, 3:1, 3:33, 4:1
 — *Appointment Director of Arboretum*, 4:19
 —, *Meet Mr.*, 1:5
 —, *Sketch of*, by Robert Dinsmore, 1:4
Muscari, 4:11
- Neolecanium corniparvum*, 4:15
 Notes & Comments, 4:18
- On The Air, 3:19
- Parrya Menziesii*, 1:2
Paulownia tomentosa, 1:22
Pentstemon, 1:3
 — *Gairdneri*, 1:3
 — *fruticasus*, 2:33
 — *Menziesii*, 2:33
Pernettya, 3:32
 — *rupicola*, 2:30
Phlomis fruticosa, 3:26
Phlax adsurgens, 2:31
 — *speciosa*, 1:2
Phoenix dactylifera, 1:13
 — *reclinata*, 1:13
- Photographs, Second Annual Rhododendron Show
 — *American Rhododendron Society Exhibit*, 2:20
 — *A. accidentalis Delicatissima*, 2:23
 — *Betty Wormald*, 2:23
 — *Goblin*, 2:24
 — *Mass Plant Exhibit*, 2:21
 — *New Seedling*, 2:22
 — *Snow Queen*, 2:22
Phyllodoce, 1:9
 — *Breweri*, 3:13
 — *nipponica*, 3:13
 — *varieties*, 1:34
Pinus manticola, 2:13
 — *Strobus*, 2:13
 Pitkin, William, 4:14
Prinsepia sinensis, 2:7
 — *uniflora*, 2:7
Prunus serrulata, 2:14
 — — "Amanogawa," 2:15
 — — "Amayadori," 2:16

- — "Ariake," 2:15
 - — "Botan-zakura," 2:15
 - — "chinensis," 2:15
 - — "Gyoiko," 2:16
 - — "Fugenzo," 2:15
 - — "Fuku-Rokuju," 2:15
 - — "Kirin," 2:15
 - — "Kwanzan," 2:15
 - — "Lannesiana," 2:16
 - — "Mikurumagaeshi," 2:15
 - — "Ojochin," 2:15
 - — "Shirayuki," 2:15
 - — "Shirofugen," 2:15
 - — "Shirotae," 2:15
 - — "Shogetsu," 2:15
 - — "Takinioi," 2:15
 - Sieboldii, 2:16
 - subhirtella, 2:14
 - — "autumnalis," 4:24
 - — "Fukubana," 2:15
 - — "Ming Shing," 2:14
 - — "Shidare-Higan," 2:15
 - — "Whitcomb Cherry," 2:15
 - tomentosa, 2:8
 - yedoensis ("Yoshino"), 2:15
- Rhododendron auriculatum, 3:11, 28
- "Azor," 3:12
 - campylocarpum x discolor, 3:12
 - camtschaticum, 3:25
 - cosmetum, 2:30
 - cuneatum, 1:12
 - Dalhousiae, 1:12
 - decorum, 1:12, 3:11
 - decorum x discolor, 3:12
 - Delavayi, 1:12
 - dichroanthum x Griersonianum, 3:12
 - dichroanthum x neriiflorum x discolor, 3:28
 - "Earl of Athlone," 3:12
 - Edgeworthii, 2:12
 - Edmundii x barbatum x arboreum, 3:12
 - eriogynum x discolor, 3:12
 - eriogynum x "Moser's Maroon," 3:12
 - Falconeri, 1:12, 31; 3:11
 - fastigiatum, 1:12
 - floccigerum, 1:12
 - Fortunei, 1:12
 - "G. A. Sims" x "Tally-Ho," 3:12
 - Genestierianum, 1:12
 - Griersonianum, 1:12
 - — "Britannia," 3:12
 - — x Armistice Day, 3:12
 - — x discolor, 3:12
 - — x "Earl of Athlone," 3:12
- — x Loderi, 3:12
 - — x Loderi-Corona, 3:12
 - — x yellow "Lady Bessborough," 3:28
 - Griffithianum, 1:12
 - Hodgsonii, 1:31
 - irroratum, 1:12
 - keleticum, 2:30
 - lacteum x Loderi, 3:28
 - lacteum x "Mary Swaythling," 3:12
 - "Lady Bessborough," 3:12
 - leucaspis, 1:12
 - Loderi-Corona x Griersonianum, 3:12
 - Loderi x Corona x Fortunei roseum, 3:12
 - Loderi x discolor, 3:12
 - "Mars" x Griersonianum, 3:12
 - megacalyx, 1:12
 - molle, 1:12
 - "Mrs. J. H. van Nes" x Loderi, 3:12
 - mucronulatum, 2:33
 - neriiflorum, 1:12
 - "Norman Gill" x "Hon. J. Montagu," 3:12
 - obovatum, 1:12
 - obtusum, 1:22
 - occidentale, 1:12
 - "Ole Olsen," 3:12
 - robiculare, 1:12
 - "Peter Koster" x Loderi, 3:12
 - protistum, 1:12
 - racemosum, 1:12, 2:30
 - radicans, 2:30
 - Rex, 1:31
 - rhabdotum, 1:12
 - Schlippenbachii, 1:12
 - Smithii x calophytum, 3:12
 - Souliei x Loderi "King George," 3:12
 - sperabile, 1:12
 - spinuliferum, 1:12, 3:28
 - "Tally-Ho" x discolor, 3:12
 - Thomsonii, 1:12
- Rhododendron Show, Second Annual, 1:24, 2:20
- Awards, 2:23
 - Committees, 2:21
 - Commercial Exhibits, 2:20
 - Judges, 2:21
 - Photographs of (See Photographs)
 - Report of, by Donald G. Graham, General Chairman, 2:20
- Rhododendrons, On Growing From Seed, 3:11
- Sources for plants, Supplement to 1946 list, 1:32
- Romneya Coulteri, 1:31
- Rosa californica, 1:13
- canina, 1:13
 - centifolia, 1:13
 - chinensis viridiflora, 1:13
 - damascena, 1:13
 - gallica, 1:13
 - gymnocarpa, 1:13
 - mohavensis, 1:13
 - moschata, 1:13
 - multibracteata, 1:13
 - omeiensis, 1:13
 - — pteracantha, 1:13
 - rugosa, 1:13
 - setigera, 1:13
 - spinosissima, 1:13
 - Ryan, Milo, 1:5, 4:19
- Sargent's Silva of North America, 4:18
- Sax, Dr. Karl, 3:9
- Scabiosa caucasica, Isaac House hybrids, 2:30
- Scabland-Coulee Region, Treasures of, 1:1
- Sciadopitys verticillata, 1:22
- Seattle Garden Club, 4:25
- Sequoia gigantea, 1:22
- Seupelt, J. G., 3:7
- Shaw, Henry, 4:4
- Shrubs of Refinement, Consider a Few, 2:7
- Shrubs, Winter Blooming, 4:23
- Skinner, Henry T., 4:13
- Solly, Cecil, 3:19
- Steinhaus, Bill, 1:14
- Stranvaesia undulata, 3:25
- Sycopsis sinensis, 2:31
- Thorgrimson, Mrs. O. B., 4:6
- Thujopsis dolobrata, 1:22
- Tolmie onion, 1:3
- Trachycarpus Fortunei, 1:29
- Vaccinium Vitis-idaea, 3:32
- Vitis-idaea minus, 3:32
 - uliginosum, 3:32
- Viburnum Burkwoodii, 2:8
- Carlesii, 2:8
 - fragrans, 4:24
 - Tinus (Laurustinus), 4:24
- Wada, K., 4:23
- Walther, Eric, 4:17
- Ward Expedition Aided, 1:20
- Washingtonia robusta, 1:29
- West Seattle Garden Club, 4:22
- Winkenwerder, Dean Hugo A., 4:19
- Wyman, Donald, 3:5

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